TP-225T
May 3, 2001

U.S. DEPARTMENT OF TRANSPORTATION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LABORATORY TEST PROCEDURE

FOR

FMVSS 225

Child Restraint Anchorage Systems
Tether Anchorage

SAFETY ASSURANCE
Office of Vehicle Safety Compliance
Room 6115, NSA-30
400 Seventh Street, SW
Washington, D.C. 20590

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1. PURPOSE AND APPLICATION

The Office of Vehicle Safety Compliance (OVSC) provides contractor laboratories with Laboratory Test Procedures as guidelines for obtaining compliance test data. The data are used to determine if a specific vehicle or item of motor vehicle equipment meets the minimum performance requirements of the subject Federal Motor Vehicle Safety Standard (FMVSS). The purpose of the OVSC Laboratory Test Procedures is to present a uniform testing and data recording format, and provide suggestions for the use of specific equipment and procedures. If any contractor views any part of an OVSC Laboratory Test Procedure to be in conflict with a Federal Motor Vehicle Safety Standard (FMVSS) or observes deficiencies in a Laboratory Test Procedure, the contractor is required to advise the Contracting Officer's Technical Representative (COTR) and resolve the discrepancy prior to the start of compliance testing.

Every contractor is required to submit a detailed test procedure to the COTR before initiating the compliance test program. The procedure must include a step-by-step description of the methodology to be used. The contractor's test procedure shall contain a complete listing of test equipment with make and model number and a detailed check-off sheet. The list of test equipment shall include instrument accuracy and calibration dates. All equipment shall be calibrated in accordance with the manufacturer's instructions. There shall be no contradictions between the Laboratory Test Procedure and the contractor's in-house test procedure. Written approval of the in-house test procedures shall be obtained from the COTR before initiating the compliance test program. The OVSC Laboratory Test Procedures are not intended to limit or restrain a contractor from developing or utilizing any testing techniques or equipment which will assist in procuring the required compliance test data. These Laboratory Test Procedures do not constitute an endorsement or recommendation for use of any product or method. However, the application of any such testing technique or equipment is subject to prior approval of the COTR.

NOTE: The OVSC Laboratory Test Procedures, prepared for the limited purpose of use by independent laboratories under contract to conduct compliance tests for the OVSC, are not rules, regulations or NHTSA interpretations regarding the meaning of a FMVSS. The Laboratory Test Procedures are not intended to limit the requirements of the applicable FMVSS(s). In some cases, the OVSC Laboratory Test Procedures do not include all of the various FMVSS minimum performance requirements. Recognizing applicable test tolerances, the Laboratory Test Procedures may specify test conditions that are less severe than the minimum requirements of the standard. In addition, the Laboratory Test Procedures may be modified by the OVSC at any time without notice, and the COTR may direct or authorize contractors to deviate from these procedures, as long as the tests are performed in a manner consistent with the standard itself and within the scope of the contract. Laboratory Test Procedures may not be relied upon to create any right or benefit in any person. Therefore, compliance of a vehicle or item of motor vehicle equipment is not necessarily guaranteed if the manufacturer limits its certification tests to those described in the OVSC Laboratory Test Procedures.

2. GENERAL REQUIREMENTS

FMVSS 225 establishes requirements for child restraint anchorage systems to ensure their proper location and strength for the effective securing of child restraints, to reduce the likelihood of their failure, and to increase the likelihood that child restraints are properly secured and thus more fully achieve their potential effectiveness in motor vehicles. The standard applies to passenger cars; trucks and multipurpose passenger vehicles with a gross vehicle weight rating (GVWR) of 3,855 kilograms (8,500 pounds) or less, except walk-in van-type vehicles and vehicles manufactured to be sold exclusively to the U.S. Postal Service; and to buses (including school buses) with a GVWR of 4,536 kg (10,000 lb) or less. Voluntarily installed child anchorage systems are required to comply with the requirements of FMVSS 225.

NOTE. Section number inside parenthesis indicates the corresponding section referenced in the standard, i.e. (S4.2).

2-1 NUMBER OF TETHER ANCHORAGES

Table 1. Index For Number of Tether Anchorages

Manufactured Period	Remark	Illustration
From September 1, 1999 to August 31, 2004	At the manufacturer's option	Table 2 for Passenger cars and trucks. Table 3 for MPVs.
For passenger cars manufactured on or after September 1, 1999 and before September 1, 2000	80% of Avg. annual production	Either Table 2 or 3 as appropriate **OR** Table 4
On or after September 1, 2000 and before September 1, 2002	Specified percentage	Either Table 2 or 3 as appropriate OR Table 5 **and** Table 6.
On or after September 1,2002	N/A	Either Table 2 or 3 as appropriate OR Table 7.

NOTE: The following symbols are used for Table 2 through Table 7:

denotes driver seat.
" denotes designated forward-facing seating positions without the tether anchorages.
3 denotes designated forward-facing seating positions with the required tether anchorages.
W denotes no designated seating positions.

Table 2. Number of The Required Tether Anchorages for Passenger Cars and Trucks

Seating Row	Illustration of Seating System Configurations					
	Case 1	Case 2	Case 3 (optional)	Case 4 (optional)	Case 5	Case 6 (optional)
First	3	"	"	" "	" "	33
Second	W	33	333	333	33	W

NOTE:

1. A vehicle that does not have an air bag on-off switch shall not have any child restraint system installed at a front designated seating position. (S5(d))

Table 3. Number of The Required Tether Anchorages for MPVs

Seating Row	Illustration of Seating System Configurations										
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11
First	3	"	"	"	"	"	" "	" "	" "	" "	33
Second	W	33	33 "	3	33	3 "	333	333	33	" " "	W
Third	W	W	W	W	" 3 "	33 "	" " "	W	W	333	W

NOTE:

1. For each of any two forward-facing DSPs in the second row.
2. For each of any three forward-facing DSPs that are located to the rear of the first row.
3. A vehicle that does not have an air bag on-off switch shall not have any child restraint system installed at a front designated seating position. (S5(d))

Table 4. Number of The Required Tether Anchorages

Seating Row	Illustration of Seating System Configurations										
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11 (option)
First	3	"	"	"	"	"	"	" "	" "	" "	33
Second	W	33	333	3	" 3	33	" 3 "	333	33	33	W
Third	W	W	W	33	33 "	3 " "	3 " 3	W	W	3 " "	W

NOTE:

1. In a vehicle with three or more rows of seating positions, at least one of the tether anchorages shall be installed at a forward-facing seating position in the second row if such a forward-facing seating position is available in that row.
2. In each vehicle with a forward-facing rear DSP other than an outboard DSP, at least one tether anchorage shall be at such a DSP.
3. A vehicle that does not have an air bag on-off switch shall not have any child restraint system installed at a front designated seating position.(S5(d))

Table 5. Number of The Required **Anchorage Systems** (Tether and Lower Anchorages) for **a specified percentage** of each manufacturer's yearly production
(Minimum requirement)

Seating Row	Illustration of Seating System Configurations								
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9
First	"	"	"	"	"	"	" "	" "	" "
Second	33	33 "	3	" 3	33	" 3 "	33 "	33	" 33
Third	W	W	3 "	" 3 "	" " "	" " 3	W	W	" " "

NOTE:

1. In a vehicle with three or more rows of seating positions, at least one of the tether anchorages shall be installed at a forward-facing seating position in the second row if such a forward-facing seating position is available in that row.

Table 6. Number of The Required **Tether Anchorages** for **Each Vehicle**
(Minimum requirement)

Seating Row	Illustration of Seating System Configurations										
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11 (option)
First	3	"	"	"	"	"	"	" "	" "	" "	33
Second	W	33	333	3	"3	33	"3 "	333	33	333	W
Third	W	W	W	33	"33	3 "	"33	W	W	" " "	W

NOTE:

1. In a vehicle with three or more rows of seating positions, at least one of the tether anchorages shall be installed at a forward-facing seating position in the second row if such a forward-facing seating position is available in that row.
2. In each vehicle with a forward-facing rear DSP other than an outboard DSP, at least one tether anchorage shall be at such a DSP.
3. A vehicle that does not have an air bag on-off switch shall not have any child restraint system installed at a front designated seating position.

Table 7. Number of The Required Tether Anchorages
(Minimum requirement)

Seating Row	Illustration of Seating System Configurations										
	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11 (option)
First	3	"	"	"	"	"	"	" "	" "	" "	33
Second	W	33	333	3	"3	33	"3"	333	33	333	W
Third	W	W	W	33	"33	"3"	"33	W	W	" " "	W

NOTE:

1. In a vehicle with three or more rows of seating positions, at least one of the tether anchorages shall be installed at a forward-facing seating position in the second row if such a forward-facing seating position is available in that row.
2. In each vehicle with a forward-facing rear DSP other than an outboard DSP, at least one tether anchorage shall be at such a DSP.
3. A vehicle that does not have an air bag on-off switch shall not have any child restraint system installed at a front designated seating position.

2-2. CONFIGURATION OF ANCHORAGES (S6.1)

1. Tether Anchorages. Each tether anchorage shall:

A. Permit the attachment of a tether hook of a child restraint system as specified in Figure 11.
B. Be accessible without the need for any tools other than a screwdriver or coin.
C. Once accessed, be ready for use without the need for any tools.
D. Be sealed to prevent the entry of exhaust fumes into the passenger compartment.

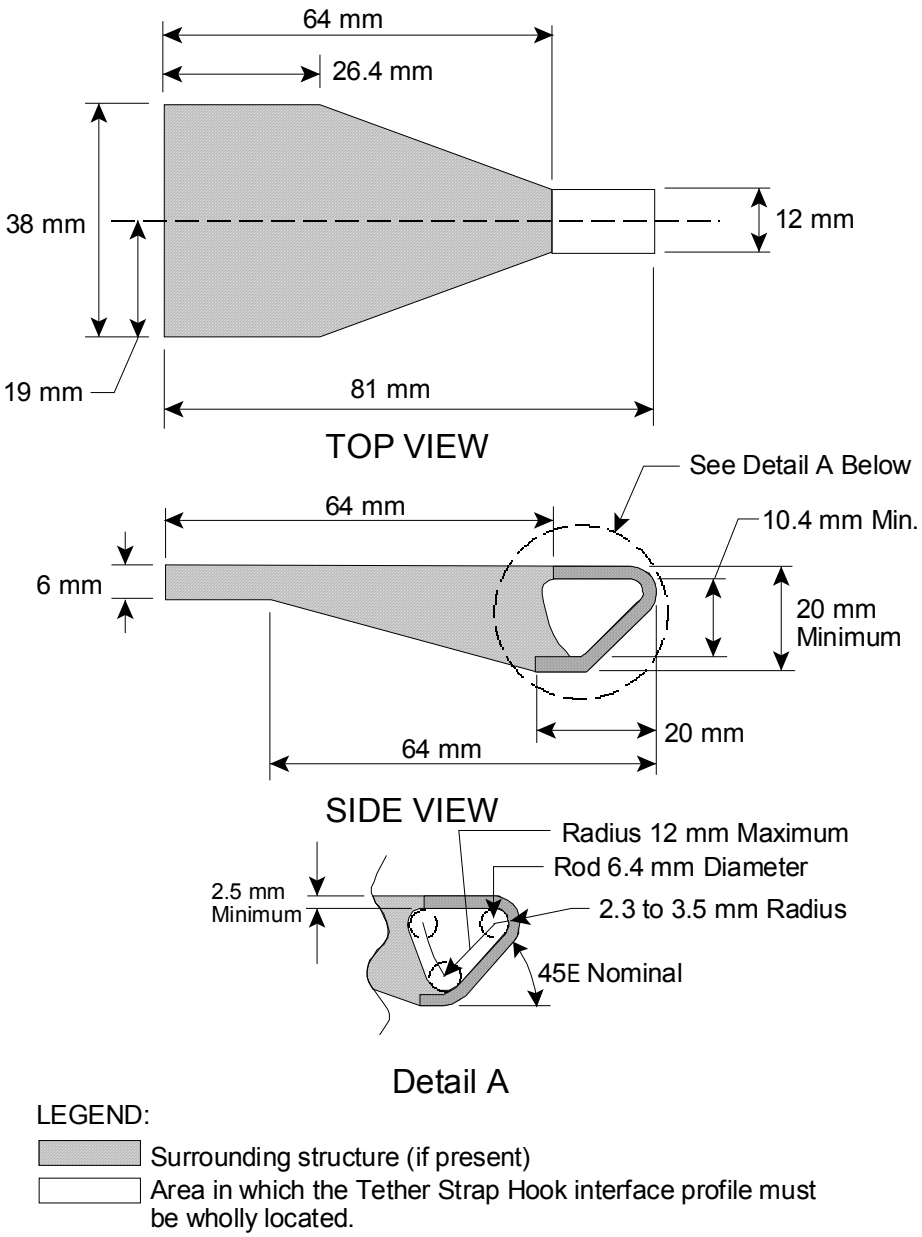
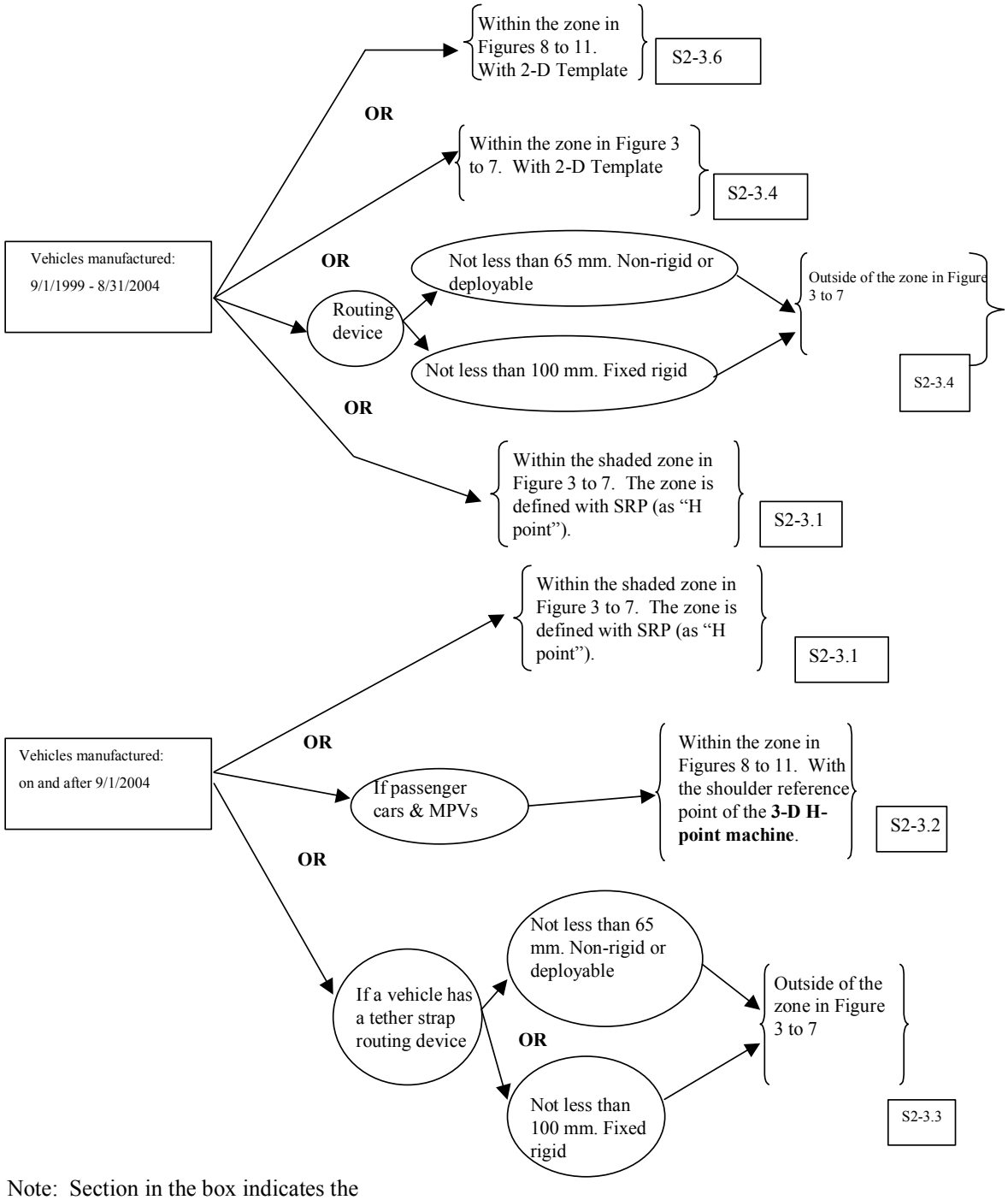


Figure 11. Interface Profile of Tether Hook.

2-3. **LOCATION OF ANCHORAGES** (S6.2)

Table 8. Index for Location of Anchorages

Manufactured Period	Remark	Applicable TP Sections
Vehicles manufactured from September 1, 1999 to August 31, 2004 (S6.2.1)	at the manufacturer's option	2-3.1
Passenger cars and MPVs manufactured before September 1, 2004	at the manufacturer's option	2-3.2
Vehicles manufactured from September 1, 1999 to August 31, 2004. (S6.2.2)	at the manufacturer's option	2-3.4
Vehicles manufactured on or after September 1, 2004	at the manufacturer's option	2-3.3
		2-3.5
Passenger cars and MPVs manufactured before September 1, 2004 (S6.2.2.1)	at the manufacturer's option	2-3.6
Vehicles manufactured from September 1, 1999 to August 31, 2004 (S6.2.2.2)	with **a routing device**	2-3.7



Note: Section in the box indicates the corresponding section in the TP

Figure A. Location Requirement for Tether Anchorage

1. Tether Anchorages (S6.2.1) - A vehicle manufactured from September 1, 1999 to August 31, 2004 may, at the manufacturer's option, each tether anchorage shall be located within the shaded zone shown in Figures 3 through 7 of the designated seating position for which it is installed. The zone is defined with reference to the seating reference point.

2. Tether anchorages (S6.2.1.1) - Passenger cars and multipurpose passenger vehicles (MPVs) manufactured before September 1, 2004. Each tether anchorage, **at the manufacturer's option**, shall be located within the shaded zone shown in Figure 8 to 11 of the designated seating position for which it is installed. The location of the tether anchorage shall be relative to the shoulder reference point of the three-dimensional H-point machine, such that-

   A. The H-point of the three dimensional H-point machine is located -

      (1) At the actual H-point of the seat at the full rearward and downward position of the seat; or

      (2) In the case of a designated seating position that has a child restraint anchorage system, midway between vertical longitudinal planes passing through the lateral center of the bar in each of the two lower anchorage system; and

   B. The back pan of the H-point machine is at the same angle to the vertical as the vehicle seat back with the seat adjusted to its full rearward and full downward position and the seat back in its most upright position.

3. Tether anchorages (S6.2.1.2) - In the case of a vehicle that -

   A. Has a user-ready tether anchorage for which no part of the shaded zone shown in Figures 3 to 7 of the designated seating position for which the anchorage is installed is accessible without removing a seating component of the vehicle; and

   B. Has a tether strap routing device that is -

      (1) Not less than 65 mm behind the torso line for that seating position, in the case of a flexible routing device or a deployable routing device, measured horizontally and in a vertical longitudinal plane; or

      (2) Not less than 100 mm behind the torso line for that seating position, in the case of a fixed rigid routing device, measured horizontally and in a vertical longitudinal plane, as illustrated in Figure B.

   The tether anchorage may, at the manufacturer's option, be located outside that zone.

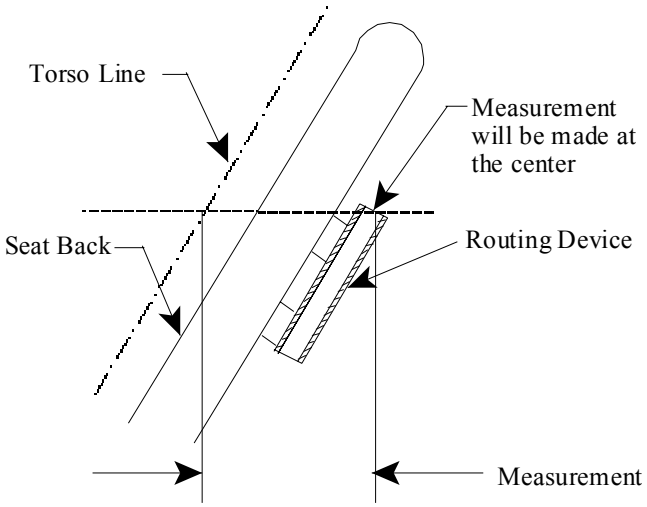


Figure B. Illustration of Measurement of Routing Device Location

4. Tether Anchorages (S6.2.2) - A vehicle manufactured from September 1, 1999 to August 31, 2004 may, at the manufacturer's option, the part of each tether anchorage that attaches to a tether hook shall be located within the shaded zone shown in Figure 3 to 7 of the designated seating position for which it is installed, such that -

   A. The H-point of the 2-dimensional template, that is described in SAE J826, is located -

      (1) At the unique Design H-point of the designated seating position, as defined in section 2.2.11.1 of SAE J1100 (June 1993), at the full rearward and downward position of the seat; or

      (2) In the case of a designated seating position that has a means of affixing the lower portion of a child restraint system to the vehicle, other than a vehicle seat belt, midway between vertical longitudinal planes passing through the lateral center of the bar in each of the two lower anchorages of that system; and

   B. The torso line of the template is at the same angle to the transverse vertical plane as the vehicle seat back with the seat adjusted to its full rearward and full downward position and the seat back in its most upright position; and

   C. The template is positioned in the vertical longitudinal plane that contains the H-point of the template. The 2-dimensional template shall be placed in the center of the seat parallel to the vehicle longitudinal centerline.

5. Tether Anchorages (S6.2.1) - A vehicle manufactured on or after September 1, 2001 must meet S6.2.1 of FMVSS 225, such that the part of each tether anchorage that attaches to a tether hook shall be located within the shaded zone shown in Figure 3 to 7 of the designated seating position for which it is installed. **The zone is defined with reference to the seating reference point.**

6. Tether Anchorages (S6.2.2.1) - In the case of passenger cars and multipurpose passenger vehicles manufactured before September 1, 2004, the portion of each user-ready tether anchorage that attaches to a tether hook may, at the manufacturer's opinion, be located within the shaded zone showed in **Figures 8 to 11** of the designated seating position for which it is installed, with reference to the shoulder reference point of the 2-dimensional template described in SAE J826, such that -

   A. The H-point of the 2-dimensional template, that is described in SAE J826, is located -

      (1) At the unique Design H-point of the designated seating position, as defined in section 2.2.11.1 of SAE J1100 (June 1993), at the full rearward and downward position of the seat; or

      (2) In the case of a designated seating position that has a means of affixing the lower portion of a child restraint system to the vehicle, other than a vehicle seat belt, midway between vertical longitudinal planes passing through the lateral center of the bar in each of the two lower anchorages of that system; and

   B. The torso line of the template is at the same angle to the transverse vertical plane as the vehicle seat back with the seat adjusted to its full rearward and full downward position and the seat back in its most upright position; and

   C. The template is positioned in the vertical longitudinal plane that contains the H-point of the template. The 2-dimensional template shall be placed in the center of the seat parallel to the vehicle longitudinal centerline.

7. Tether Anchorages (S6.2.2.2) - The portion of a user-ready tether anchorage in a vehicle manufactured from September 1, 1999 to August 31, 2004 may be located outside the shade zone referred to in 2-3.4 of this test procedure, if no part of the shade zone is accessible without removing a seating component of the vehicle and the vehicle is equipped with a routing device, such that -

   A. Has a tether strap routing device that is -

      (1) not less than 65 mm behind the torso line of the 2-dimensional template, as positioned according to 2-3.4 of this test procedure, for that seating position, in the case of a non-rigid-webbing-type routing device or a deployable routing device, measured horizontally and in a vertical longitudinal plane; or

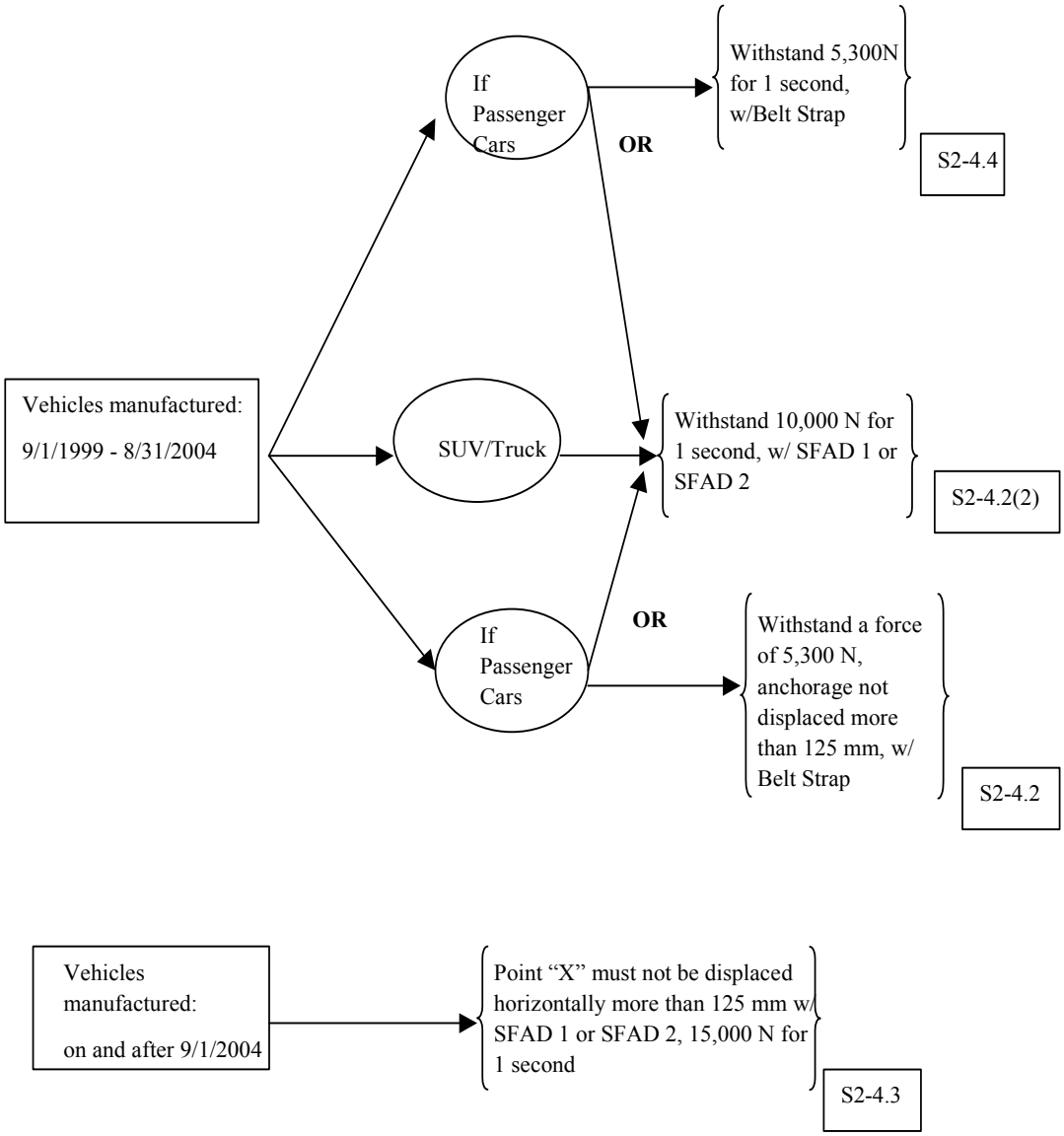
      (2) not less than 100 mm behind the torso line of the 2-dimensional template, as positioned according to 2-3.4, for that seating position, in the case of a fixed rigid routing device, measured horizontally and in a vertical longitudinal plane,

      (3) when tested after being installed as it is intended to be used, is of sufficient strength to withstand, with the user-ready tether anchorage, the load referred to in S6.3.4 or S6.3.4.2 of the standard 225 (see 2-4.2(2) and 2-4.5 of this test procedure).

2-4. **STRENGTH REQUIREMENT**

Table 9. Index for Strength Requirement

Manufactured Period	Remark	Applicable TP Sections
Passenger cars manufactured before September 1, 2004:	at the manufacturer's option. **Testing with a belt strap**	2-4.1
Vehicles manufactured from September 1, 1999 to August 31, 2004	at the manufacturer's option Testing with SFAD	2-4.2(1)
Vehicles manufactured from September 1, 1999 to August 31, 2004	at the manufacturer's option Testing with SFAD	2-4.2(2)
Vehicles manufactured from September 1, 1999 to August 31, 2004	at the manufacturer's option Testing with SFAD	2-4.3
Vehicles manufactured on or after September 1, 2004	Testing with SFAD	2-4.3
Passenger cars manufactured before September 1, 2004:	at the manufacturer's option. **Testing with a belt strap**	2-4.4



Note: Section in the box indicates the corresponding section in the TP

Figure C. Strength Requirement for Tether Anchorage

1. Tether Anchorages(S6.3.2) In a vehicle manufactured before September 1, 2004, at the manufacturer's option, each user-ready tether anchorage in a row of designated seating positions in a passenger car shall withstand the application of a force of **5,300 N** when tested accordance with section 2-3.3.B of this test procedure (see FMVSS 225, **S8.2)**. **The anchorage must not be displaced more than 125 mm,** and there shall be no complete separation of any anchorage component.

2. (S6.3) In a vehicle manufactured from September 1, 1999 to August 31, 2004, at the manufacturer's option, each user-ready tether anchorage in a row of designated seating positions in a passenger car shall meet (1) **or** (2) below:

   (1) (S6.3.1) after pre-loading the device with a force of 500 N, **point "X"** of the SFAD must not be displaced horizontally more than **125 mm** during the application of force, when tested in accordance with section 12-3.3.C of this test procedure (see FMVSS 225, **S8**);

   (2) (S6.3.4) every user-ready tether anchorage in a row of designated seating positions shall, at the manufacturer's option, when tested, **withstand** the application force of **10,000 N** (see 12-3.3.D) -

      (i) (S6.3.4(a)) applied by means of one of the following types of test devices, installed as a child restraint system would be in accordance with the manufacturer's installation, namely SFAD 1 or SFAD 2.

      (ii) (S6.3.4(b)) applied -
      (a) in a forward direction parallel to the vehicle's vertical longitudinal plane through the point "X" on the test device, and
      (b) initially, along a horizontal line or along any line below or above that line that is at an angle to that line of not more than 5 degrees;

      (iii) (S6.3.4(c)) approximately linearly over a time, at the option of the vehicle manufacturer, of not more than 30 seconds, at any onset force rate of not more than 135,000 N/s; and

      (iv) (S6.3.4(d)) maintain at a 10,000 N level for one second.

3. (S6.3.1) vehicles manufactured on or after September 1, 2004 must meet the following, as specified S6.3 of FMVSS 225:

   After pre-loading the device with a force of 500 N, **Point "X"** of the SFAD must not be displaced horizontally more than **125 mm** during the application of force, when tested in accordance with section 12-3.3.C of this test procedure (see FMVSS 225, **S8**).

4. (S6.3.4.1) Until September 1, 2004, every user-ready tether anchorage in a row of designated seating positions in a passenger car may, when tested, subject to S6.3.4.2 of FMVSS 225, **withstand** the application of a force of **5,300 N**, which force shall be (see 12-3.3.E)-

   (1) Applied by means of a **belt strap** that -

(i) extends not less than 250 mm forward from the vertical plane touching the rear top edge of the vehicle seat back,

(ii) is fitted at one end with suitable hardware for applying the force and at the other end with a bracket for the attachment of the user-ready tether anchorage, and

(iii) passes over the top of the vehicle seat back as shown in Figure 19;

(2) applied -

(i) in a forward direction parallel to the vehicle's longitudinal vertical plane, and

(ii) initially, along a horizontal line or along any line below that line that is at an angle to that line of not more than 20 degrees;

(3) attained within 30 seconds, at any onset force rate of not more than 135,000 N/s; and

(4) maintained at a **5,300** N level for **one second**.

5. (S6.3.4.2) If the zones in which tether anchorages are located overlap and if, in the overlap area, a user-ready tether anchorage is installed that is designed to accept the tether strap hooks of two restraint systems simultaneously, both portions of the tether anchorage that are designed to bind with a tether strap hook shall withstand the required forces applied to both portion simultaneously.

6. (S6.3.4.3) Provision for simultaneous and sequential testing.

(1) In the case of vehicle seat assemblies equipped with more than one tether anchorage system, the required force may, at the agency's option, be applied simultaneously to each of those tether anchorages. However, forces may not be applied simultaneously for any two adjacent seating positions whose midpoints are less than **400 mm apart**, as measured below:

(i) The midpoint of the seating position lies in the vertical longitudinal plane that is equidistance from vertical longitudinal planes through the geometric center of each of the two lower child restraint anchorages at the seating position.

(ii) Measure the distance between the vertical longitudinal planes passing through the midpoints of the adjacent seating positions, as measured along a line perpendicular to the planes.

(2) A tether anchorage of a particular child restraint anchorage system will not be tested with the lower anchorages of that anchorage system if one or both of those lower anchorages have been previously tested under this test procedure.

7. (S6.3.4.4) The strength requirement tests shall be conducted with the vehicle seat adjusted to its full rearward and full downward position and the seat back in its most upright position. When SFAD2 is used in testing and cannot be attached to the lower anchorages with the seat

back in this position, adjust the seat back as recommended by the manufacturer in its instructions for attaching child restraints.

2-6 General Exceptions

1. Convertibles and school buses: Convertibles and school buses are excluded from the requirements to be equipped with tether anchorages.

2. Built-in child restraint system: A vehicle may be equipped with a built-in child restraint system conforming to the requirements of Standard No. 213 (49 CFR 571.213) instead of one of the required tether anchorages or child restraint anchorage systems.

3. Each vehicle that-

   A. Does not have a rear designated seating position and that thus meets the conditions in S4.5.4.1(a) of Standard No. 208 (§571.208); and

   B. Has an air bag on-off switch meeting the requirements of S4.5.4 of Standard No. 208,shall have a child restraint anchorage system for a designated passenger seating position in the front seat, instead of a tether anchorage that is required for a front passenger seating position.

   C. For vehicles manufactured on or after September 1, 2002, each vehicle that does not have a rear designated seating position, and does not have an air bag installed at front passenger designated seating positions pursuant to a temporary exemption granted by NHTSA under 49 CFR Part 555, must have a child restraint anchorage system installed at a front passenger designated seating position. In the case of convertibles, the front designated passenger seating position need have only the two lower anchorages meeting the requirements of the lower anchorage of the child restraint anchorage system.

4. Each vehicle that-

   A. Has a rear designated seating position and meets the conditions in S4.5.4.1(a) of Standard No. 208 (§571.208); and

   B. Has an air bag on-off switch meeting the requirements of S4.5.4 of Standard No. 208, shall have a child restraint anchorage system for a designated passenger seating position in the front seat, instead of a child restraint anchorage system that is required for the rear seat.

   C. For vehicles manufactured on or after September 1, 2002, each vehicle that has a rear designated seating position and meets the conditions in S4.5.4.1(b) of Standard No. 208, and does not have an air bag installed at front passenger designated seating positions pursuant to a temporary exemption granted by NHTSA under 49 CFR Part 555, must have a child restraint anchorage system installed at a front passenger designated seating position in place of one of the child anchorage systems that is required for the rear seat. In the case of convertibles, the front designated passenger

seating position need have only the two lower anchorages meeting the requirements of the lower anchorage of the child restraint anchorage system.

5. Air bag on-off switch: A vehicle that does not have an air bag on-off switch meeting the requirements of S4.5.4 of Standard No. 208 (571.208), shall not have any child restraint anchorage system installed at a front designated seating position.

3. SECURITY

The contractor shall provide appropriate security measures to protect the OVSC test vehicles from unauthorized personnel during the entire compliance testing program. The contractor is financially responsible for any acts of theft and/or vandalism which occur during the storage of test vehicles. Any security problems which arise shall be reported by telephone to the Industrial Property Manager (IPM), Office of Contracts and Procurement, within two working days after the incident. A letter containing specific details of the security problem will be sent to the IPM (with copy to the COTR) within 48 hours. The contractor shall protect and segregate the data that evolves from compliance testing before and after each vehicle test. No information concerning the vehicle safety compliance testing program shall be released to anyone except the COTR, unless specifically authorized by the COTR or the COTR's Branch Chief or Division Chief.

NOTE: NO INDIVIDUALS, OTHER THAN CONTRACTOR PERSONNEL DIRECTLY INVOLVED IN THE COMPLIANCE TESTING PROGRAM, SHALL BE ALLOWED TO WITNESS ANY VEHICLE COMPLIANCE TEST UNLESS SPECIFICALLY AUTHORIZED BY THE COTR.

4. GOOD HOUSEKEEPING

Contractors shall maintain the entire vehicle compliance testing area, test fixtures and instrumentation in a neat, clean and painted condition with test instruments arranged in an orderly manner consistent with good test laboratory housekeeping practices.

5. TEST SCHEDULING AND MONITORING

The contractor shall submit a vehicle test schedule to the COTR prior to conducting the first compliance test. Tests shall be completed as required in the contract. Scheduling shall be adjusted to permit vehicles to be tested to other FMVSSs as may be required by the OVSC. All compliance testing shall be coordinated with the COTR in order to allow monitoring by the COTR or other OVSC personnel.

6. TEST DATA DISPOSITION

The contractor shall make all preliminary compliance test data available to OVSC within four hours after the test, if requested. Final test data, including digital printouts and computer generated plots (if applicable), shall be furnished to the COTR within 5 working days. Additionally, the contractor shall analyze the preliminary test results as directed by the COTR. All backup data sheets, strip charts, recordings, plots, technician's notes etc., shall be either sent to the COTR or destroyed at the conclusion of each delivery order, purchase order, etc. Calibration information shall not be destroyed.

7. GOVERNMENT FURNISHED PROPERTY (GFP)

ACCEPTANCE OF VEHICLE

The Contractor has the responsibility of accepting the test vehicle from either a new car dealer or a vehicle transporter. In both instances, the contractor acts in the OVSC's behalf when signing an acceptance of the test vehicle. If the vehicle is delivered by a dealer, the engineer must check to verify the following:

A. All options listed on the "window sticker" are present on the test vehicle.

B. Tires and wheel rims are new and the same as listed.

C. There are no dents or other interior or exterior flaws.

D. The vehicle has been properly prepared and is in running condition.

E. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys.

F. Proper fuel filler cap is supplied on the test vehicle.

If the test vehicle is delivered by a government contracted transporter, the contractor's test engineer shall check for damage which may have occurred during transit.

A "Report Of Vehicle Condition At The Completion Of Testing" form (shown on the next page) will be supplied to the contractor by the COTR when the test vehicle is transferred from the new car dealer or between test contracts. The upper half of the form describes the vehicle in detail, and the lower half provides space for a detailed description of the post test condition. This form must be returned to the COTR with the copies of the Final Test Report or the reports will NOT be accepted.

NOTIFICATION OF COTR

The COTR must be notified within 24 hours after a test vehicle has been delivered.

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

CONTRACT NO.: DTNH22-_____ DATE: _____

FROM: _____
TO: _____

The following vehicle has been subjected to compliance testing for FMVSS No. _____

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

MODEL YEAR/MAKE/MODEL/BODY STYLE: _____

NHTSA NO.: _____ BODY COLOR: _____ VIN: _____

ODOMETER READINGS: ARRIVAL - _____ miles DATE - _____

COMPLETION - _____ miles DATE - _____

PURCHASE PRICE: $_____ DEALER'S NAME: _____

ENGINE DATA: ____ Cylinders ____ Liters ____Cubic Inches

TRANSMISSION DATA: ____ Automatic ____ Manual ____ No. of Speeds

FINAL DRIVE DATA: ____ Rear Drive ____ Front Drive ____ 4 Wheel Drive

TIRE DATA: Size - _____ Mfr. - _____

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT:

	Air Conditioning		Traction Control		Clock
	Tinted Glass		All Wheel Drive		Roof Rack
	Power Steering		Speed Control		Console
	Power Windows		Rear Window Defroster		Driver Air Bag
	Power Door Locks		Sun Roof or T-Top		Passenger Air Bag
	Power Seat(s)		Tachometer		Front Disc Brakes
	Power Brakes		Tilt Steering Wheel		Rear Disc Brakes
	Antilock Brake System		AM/FM/Cassette Radio		Other-

LIST OTHER PERTINENT OPTIONAL EQUIPMENT ON NEXT PAGE (REMARKS SECTION)

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING (Continued)

REMARKS:

_____

_____

_____

_____

Equipment that is no longer on the test vehicle as noted on previous page:

_____

_____

_____

_____

Explanation for equipment removal:

_____

_____

_____

Test Vehicle Condition:

_____

_____

_____

_____

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

8. CALIBRATION OF TEST INSTRUMENTS

Before the contractor initiates the safety compliance test program, a test instrumentation calibration system shall be implemented and maintained in accordance with established calibration practices. Guidelines for setting up and maintaining such calibration systems are described in MIL-C-45662A, "Calibration System Requirements". The calibration system shall be set up and maintained as follows:

A. Standards for calibrating the measuring and test equipment will be stored and used under appropriate environmental conditions to assure their accuracy and stability.

B. All measuring instruments and standards shall be calibrated by the contractor, or a commercial facility, against a higher order standard at periodic intervals NOT TO EXCEED SIX (6) MONTHS! Records, showing the calibration traceability to the National Institute of Standards and Technology (NIST), shall be maintained for all measuring and test equipment.

C. All measuring and test equipment and measuring standards will be labeled with the following information:

   (1) Date of calibration

   (2) Date of next scheduled calibration

   (3) Name of company performing calibration service (if different than contractor)

   (4) Name and employer of the technician who calibrated the equipment

D. A written calibration procedure shall be provided by the contractor which includes as a minimum the following information for all measurement and test equipment:

   (1) Type of equipment, manufacturer, model number, etc.

   (2) Measurement range (see Table 10)

   (3) Accuracy (see Table 10)

   (4) Calibration interval

Table 10. TEST EQUIPMENT ACCURACY

EQUIPMENT	RANGE	ACCURACY
Hydraulic Rams (3 Required, minimum)	0-120% of Specified Load	N/A
Load Cells (3 Required, minimum)	0-120% of Readout Capability	± 0.5%
Load Output Recorder	Readout Capability of 3% of Maximum Load	± 1.0%
Hydraulic Pump	Approx. 3.8 gpm	N/A
DC Power Supply	Adequate for Load Cells Used	Line Reg. of 0.05% (105 to 125 v) Load Reg. of 0.05% (0 to Full) Ripple: 5 mv P/P Stability: 0.1%
Digital Voltmeter or Equivalent Used to Monitor Load Cell Outputs	4 Digit Readout	± 0.1%
Signal Conditioning and Calibration Units	Adequate for Load Cells Used	± 0.5%
H-Point Machine	N/A	N/A
Linear Scale	100 mm, minimum	± 2.0 mm

(5) Type of standard used to calibrate the equipment (calibration traceability of the standard must be evident)

E. Records of the calibration for all test instrumentation shall be kept by the contractor in a manner which assures the maintenance of established calibration schedules. All such records shall be readily available for inspection when requested by the COTR. The calibration system shall need the acceptance of the COTR before the test program commences.

F. Test equipment will receive a calibration check immediately prior to and after the test. This check will be recorded by the test technician(s) and included in the final report.

NOTE: In the event of a failure to the standard's minimum performance requirements, a post test calibration check of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration will be at the COTR's discretion and shall be performed without additional cost.

9. PHOTOGRAPHIC DOCUMENTATION

Photographs, if required, shall be color, 8-1/2 x 11 inches, and properly focused for clear images. A tag, label or placard identifying the test vehicle model, NHTSA number and date or item of equipment part number and date shall appear in each photograph and must be legible. Each photograph shall be labeled as to the subject matter.

As a minimum the following photographs shall be included in each vehicle final test report:

A. 3/4 frontal right side view

B. Test vehicle's certification label

C. Test vehicle's tire information placard or label

D. 3/4 frontal left side view of test vehicle with test apparatus in place

E. 3/4 frontal right side view of test vehicle with test apparatus in place

F. Vehicle tie down at each tie down location

G. Pretest full front and side views of each tether anchorage system installed in the vehicle

H. Pretest equipment set up at each designated seating position.

I. Post test condition of each tether anchorage.

J. Load system control and data recording device in test position.

K. Loading device with load cell and the test fixture in test position.

L. If the lower anchorages are used, pretest condition of each lower anchorage.

M. If the lower anchorages are used, post test condition of each lower anchorage.

N. Any condition which requires special detail.

10. DEFINITIONS

CHILD RESTRAINT ANCHORAGE

Any vehicle component, other than Type I or Type II seat belts, that is involved in transferring loads generated by a child restraint system to the vehicle structure.

CHILD RESTRAINT ANCHORAGE SYSTEM

A vehicle system that is designed for attaching a child restraint system to a vehicle at a particular designated seating position, consisting of:

(a) Two lower anchorages meeting the requirements of FMVSS 225, S9; and

(b) A tether anchorage meeting the requirements of FMVSS 225, S6.

CHILD RESTRAINT FIXTURE (CRF)

The fixture depicted in Figures 1 and 2 of this test procedure that simulates the dimensions of a child restraint system, and that is used to determine the space required by the child restraint system and the location and accessibility of the lower anchorages.

CURB WEIGHT

Weight of the vehicle as delivered with full capacity of vehicle fluids.

DEPLOYABLE ROUTING DEVICE - TBD

DESIGNATED SEATING POSITION (DSP)

Any plan view location capable of accommodating a person at least as large as a 5th percentile adult female, if the overall seat configuration and design and vehicle design is such that the position is likely to be used as a seating position while the vehicle is in motion, except for auxiliary seating accommodations such as temporary or folding jump seats. The number of DSP's in a vehicle is printed on the tire placard as required by FMVSS 110 and FMVSS 120.

FLEXIBLE ROUTING DEVICE - TBD

FIXED ROUTING DEVICE - TBD

INTEGRAL AND PERMANENT PART OF THE VEHICLE - TBD

REAR DESIGNATED SEATING POSITION

Any designated seating position (as defined above) that is rearward of the front seats(s).

SFAD 1

Static Force Application Device 1 shown in Figures 12 to 16 of this procedure.

SFAD 2

Static Force Application Device 2 shown in Figures 17 and 18 of this procedure.

TETHER ANCHORAGE

A user-ready, permanently installed vehicle component that transfers loads from a tether strap through the tether hook to the vehicle structure and that accepts a tether hook.

TETHER STRAP

A strap that is secured to the rigid structure of the seat back of a child restraint system, and is connected to a tether hook that transfers the load from that system to the tether anchorage.

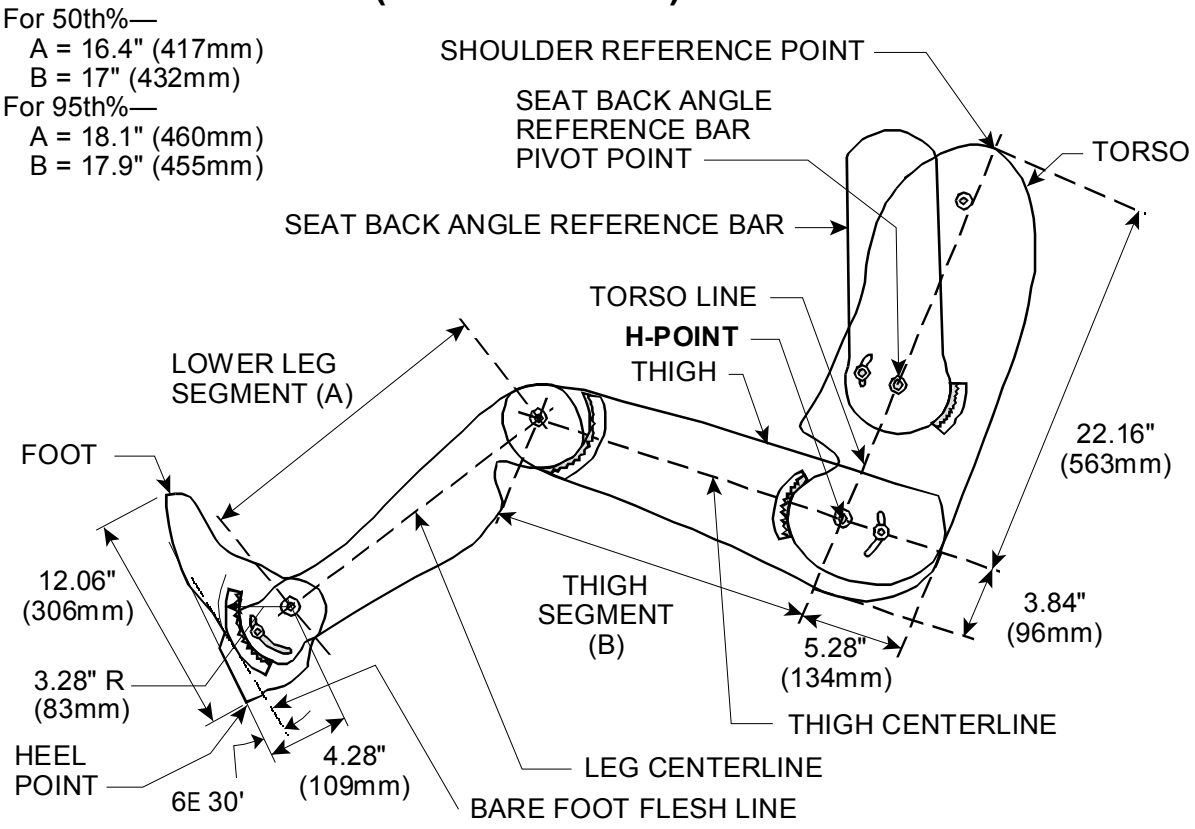
TETHER HOOK

A device, illustrated in Figure 11, used to attach a tether strap to a tether anchorage.

H-POINT

Mechanically hinged hip point of a manikin which simulates the actual pivot center of the human torso and thigh, described in SAE J826.

H-POINT TEMPLATE
(2 Dimensional)



SEATING REFERENCE POINT (SRP)

Manufacturer's Design Reference Point which —

A. Establishes the rearmost normal design driving or riding position of each DSP in a vehicle

B. Has coordinates established relative to the designed vehicle structure

C. Simulates the position of the center pivot of the human torso and thigh

D. Is the reference point employed to position the two-dimensional templates described in SAE Recommended Practice J826, Manikins for use In Defining Vehicle Seating Accommodation.

TORSO LINE

Line connecting the H-Point and the shoulder reference point (SHRP) as defined in SAE Recommended Practice J383 (of June 1995), Motor Vehicle Seat Belt Anchorage.

USER-READY TETHER ANCHORAGE

An anchorage that is accessible without the need for any tools other than a screwdriver or coin, and once accessed, is ready for use without the need for any tools.

11. PRETEST REQUIREMENTS

11-1. Prior to conducting any compliance tests, contractors are required to submit a detailed in-house compliance test procedure to the COTR which includes:

1. A step-by-step description of the methodology to be used. The in-house test procedure will be written in check-off sheet format and will describe each significant task the test technician must perform to accomplish the testing. The check-off list test procedure is intended to provide the test technician(s) with a simple cook book type plan to conduct the test and produce the necessary data. The test procedure shall be of sufficient detail to ensure successful testing.

2. A written quality control (QC) procedure which shall include calibrations, the data review process, report review, and the people assigned to perform QC on each task.

3. A complete listing of test equipment which shall include instrument accuracy and calibration dates.

4. Detailed checkoff lists to be used during the test and during data review.

11-2. There shall be no contradiction between the OVSC Laboratory Test Procedure and the contractor's in-house test procedure. The contractor's in-house test procedure shall cover all aspects of testing from vehicle receipt to submission of the Final Report. Written approval must be obtained from the COTR before initiating the compliance test program, unless otherwise directed by the COTR. A compliance test is not to be conducted unless all of the various test conditions specified in the applicable OVSC Laboratory Test Procedure have been met. Failure of a contractor to obtain the required test data and to maintain acceptable limits on test parameters in the manner outlined in the applicable OVSC Laboratory Test Procedure shall require a retest at the expense of the contractor. The retest costs will include the cost of the replacement vehicle and the service costs for conducting the retest.

11-3. RECEIVING INSPECTION OF TEST VEHICLES

1. A clean and secure test vehicle storage area shall be maintained by the contractor. The test vehicle shall be protected from theft of equipment.

2. Upon receipt of the test vehicle, it shall be identified by the contractor with a NHTSA number previously furnished by the COTR.

3. The test vehicle's seats, seatbelt restraint systems, child restraint anchorage system, and child restraint systems shall be subjected to a visual inspection to ascertain that the child restraint systems, child restraint anchorage system, and the seat belt assembly anchorage systems are complete and the seats and seat belt assemblies are functional (see NOTE below). Any damage that could influence the test results shall be recorded on the Vehicle Condition sheet, and any unusual condition shall be reported to the COTR before initiation of testing.

Note. To inspect whether the seats and seat belt assemblies are functional, put a person in the seat and engage the seat belt system.

4. The operation of all adjustable seating systems shall be checked to ascertain that the systems operate correctly. The results of this inspection shall be recorded on the data sheet 8, "Test Vehicle Receiving-Inspection."

12. COMPLIANCE TEST EXECUTION

12-1. GENERAL STATEMENT OF FMVSS 225 REQUIREMENTS

FMVSS 225 establishes requirements for Child Restraint Anchorage Systems. Those requirements are detailed in Title 49 Code of Federal Regulations Part 571.225.

12-2. TEST EQUIPMENT DESCRIPTION — The test laboratory is responsible for supplying all of the following equipment.

1. A test loading, monitoring, and control system which shall consist of a minimum of 3 load cells. Force control shall be derived from a closed loop programmable force generator and shall be capable of simultaneously supplying loads to a maximum of 3 separate SFADs at a constant rate. In addition, if any seat belts, belt straps, or lower child restraint anchorages fail during the test, the effect on the loading of the remaining anchorages shall not cause those anchorages to exceed the load time, load rate or force requirements of the standard, as the test is completed for those anchorages that did not fail.

   Recorded data shall include preload, loading vs time, displacement vs time, and unloading of the anchorages at the end of the hold period.

   SFAD 1 is used to test a tether anchorage at a designated seating position that does not have lower child restraint anchorages.

   SFAD 2 is used to test a tether anchorage and the lower anchorages of the child restraint anchorage system at a designated seating position that has a child restraint anchorage system.

   If all loading devices are not connected to the same load source, the application rate difference between any of the systems shall not exceed five percent.

   The loading apparatus shall be mounted such that it is sturdy enough to adequately withstand the loads applied and such that it will load the SFAD and the belt strap at the required angles.

IT IS IMPORTANT TO NOTE THAT A MAXIMUM OF 3 SEPARATE LOADING DEVICES CAN BE REQUIRED DEPENDENT UPON THE TEST VEHICLE'S CHILD RESTRAINT ANCHORAGE CONFIGURATION, AND A PLOT OF LOAD VERSUS TIME MUST BE GENERATED DURING THE TEST OR FROM REAL TIME CONTINUOUS MEASUREMENTS RECORDED AND STORED DURING THE TEST.

2. SFAD 1 and SFAD 2 are shown in Figures 12, and 17.

3. Appropriate measuring devices for angle, length, width, height, etc.

4. Restraining device or fixture to completely tie-down and immobilize the S225 test vehicle when applying the required child restraint anchorage loads.

5. System to raise and hold the test vehicle at least 25mm above the floor level.

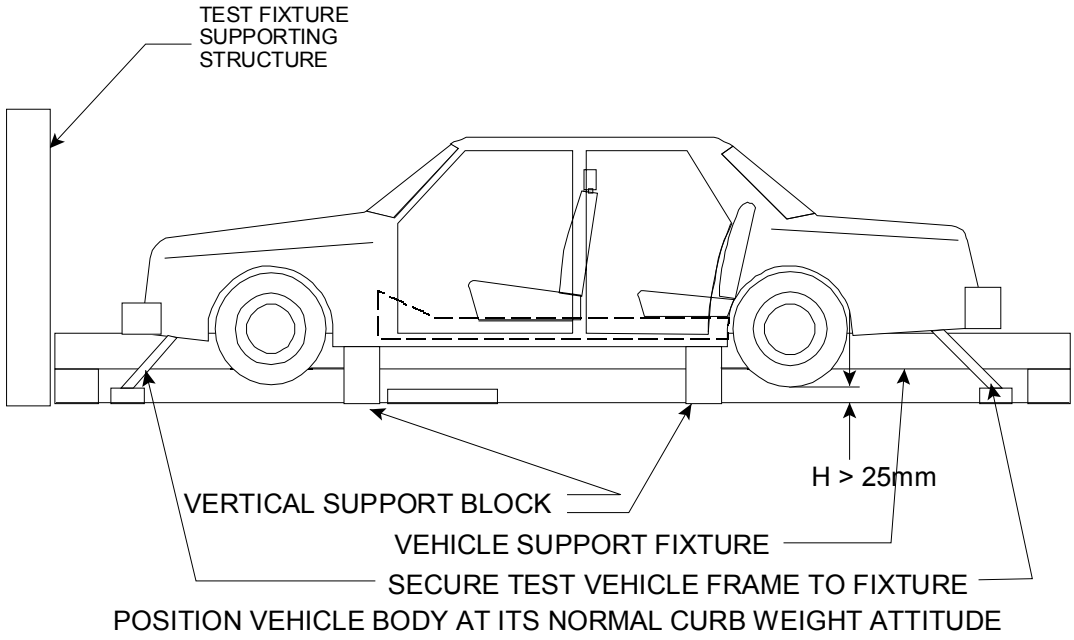


FIGURE D. Typical S225 vehicle test setup

Note 1. The vehicle shall be retained in the position by installing a vertical support or jack between the frame and test area floor close to each wheel.

Note 2. Do not use excessive forces for the tie down. Any tie down force that could influence the test results, by deflecting the vehicle frame, shall not be used.

Note 3. The test vehicle shall be secured to the vehicle test fixture such that it does not move more than 5 mm during the forward direction force application.

Note 4. The test vehicle must not be restrained by the front or rear bumper systems, movable parts of the suspension, or parts that could influence the test results.

6. A camera to provide pertinent still photographs, which as a minimum, should include the photographs listed in this procedure.

12-3. SEQUENCE FOR TETHER ANCHORAGE SYSTEM TESTS

The test vehicle shall be subjected to the tests in the order shown below:

1. Configuration inspection

2. Location and Dimensional measurements

3. Static load testing of child restraint anchorage system (Tether)

NOTE: All tether anchorages will be tested starting at the front of the vehicle and progressing to the rear of the vehicle, unless otherwise directed by the COTR.

12-3.1. CONFIGURATION INSPECTION

A. Tether anchorage.

(1) Determine if the tether anchorage can permit the attachment of a tether hook (shape and dimensions specified in FMVSS 213).

NOTE. See Figure 11 for interface profile of tether hook.

(2) Determine if the anchorage is accessible without the need for any tools other than a screwdriver or coin.

(3) Determine if the anchorage is ready for use without the need for any tools.

(4) Determine if the anchorage is sealed to prevent the entry of exhaust fumes into the passenger compartment.

(5) Record the inspection results on Data Sheet 1.

12-3.2. LOCATION AND DIMENSIONAL MEASUREMENTS

A. Record the number of Designated Seating Positions (DSPs) specified on the test vehicle's tire information label or placard on Data Sheet 3.

B. Verify with the COTR the option used by the manufacturer for certifying the tether location.

Table 11. Index for Location and Dimensional Measurements

Manufactured Period & Routing Device	Remark	Applicable TP Sections
A vehicle manufactured from September 1, 1999 to August 31, 2004	at manufacturer's option	12-3.2.3
A vehicle manufactured on or after September 1, 2004		12-3.2.3
Passenger cars and MPVs manufactured before September 1, 2004	at manufacturer's option	12-3.2.4
A vehicle that has a **tether strap routing device**		12-3.2.5
A vehicle manufactured from September 1, 1999 to August 31, 2004	at manufacturer's option	12-3.2.6
A passenger car and a MPV that are manufactured before September 1, 2004	at manufacturer's option	12-3.2.7
A vehicle manufactured from September 1, 1999 to August 31, 2004, and that has a **tether strap routing device**	at manufacturer's option	12-3.2.8

C. Use the following procedure to determine Point "V," Point "W," Plane "M," Plane "R," and the upper boundary plane:

(1) Determine the H-point and Point "R" with the procedures specified in the applicable section. Point "R" is the shoulder reference point defined by either the 2-dimensional template or the 3-dimensional H-point machine.

(2) Locate Point "V" that is 350 mm vertically above and 175 mm horizontally back from the H-point.

(3) From Point "R," locate Point "W" that is 50 mm vertically below and 50 mm horizontally back from Point "R."

(4) From Point "R," locate the vertical Plane "M" that is 1000 mm horizontally back from Point "R."

(5) Find the horizontal plane that contains Point "R." Denote this plane as "R Plane Cross-Section." Find the plane that contains Point "R" and makes an upward 30 degree angle with Plane R." Denote this plan as Plane "Upper."

(6) Find two planes where intersection is the vertical line passing through Point "R." Each plane makes a forward horizontal 20 degree angle on either side of the Median Plane. Denote these planes as "Forward-Vertical."

(7) Determine two vertical lines by intersecting Plane "M" and Planes "Forward-Vertical." Denote these lines as "Center Vertical Lines."

(8) Determine a vertical line contained in the Median Plane and 2000 mm behind Point "R." Denote the vertical line as "Rear Vertical Line."

(9) Determine two vertical planes that contain "Rear Vertical Line" and "Center Vertical Lines."

(10) Position one end of a 250 mm long strap line at Point "V." Place the strap line over the seat back and wrap around the top portion of the seat back in Median Plane. Determine an arc created by the other end of the strap line in the Median Plane. Project the arc laterally onto Planes "Forward-Vertical."

(11) Position one end of a 200 mm long strap line at Point "W." Place the strap line over the seat back and wrap around the top portion of the seat back in Median Plane. Determine an arc created by the other end of the strap line in the Median Plane. Project the arc laterally onto Planes "Forward-Vertical."

NOTE.(10) and (11) above are for the non-optional anchorage location.

12-3.2.1. Tether anchorage (S6.2.1): If a vehicle is manufactured from September 1, 1999 to August 31, 2004, and S6.2.1 of the standard 225 is selected as an manufacturer's option (see 2-3.1), and if a vehicle is manufactured on or after September 1, 2004:

(A) Record the location of seats that have the tether anchorages on Data Sheet 3. Verify the actual number of the tether anchorages with the number of the required anchorages as specified in Section 2-1 of this test procedure.

(B) Measure the tether anchorage locations, as follows:

(i) Place the H-point of the two-dimensional H-point template at the SRP, with the seat adjusted to its full rearward and full downward position and the seat back in its most upright position.

(ii) Determine that the tether anchorage (the part that attaches to a tether hook) is located within the shaded zone shown in Figures 3 to7.

(C) Take a picture of the two-dimensional H-point machine in the seat.

(D) The result shall be recorded on Data Sheet 3.

12-3.2.2. Tether anchorages (S6.2.1.1): Passenger cars and multipurpose passenger vehicles (MPVs) manufactured before September 1, 2004, and S6.2.1.1 of the standard 225 is selected as a manufacturer's option (see 2-3.2):

(A) Record the location of seats that have the tether anchorages on Data Sheet 3. Verify the actual number of the tether anchorages with the number of the required anchorages as specified in Section 2-1 of this test procedure.

(B) Measure the tether anchorage locations, as follows:

(a) Install a **three-dimensional H-point machine**:

(i) As specified in section 5 of SAE J826 with the 95th percentile leg installed, at the full rearward and downward position of the seat. Position the H-point machine so that the initial coordinates of the H-point are correct in relation to the fiducial reference points provided by the vehicle manufacturer; or

(ii) In the case of a designated seating position that has a child restraint anchorage system, position the H-point midway between vertical longitudinal planes passing through the lateral center of the bar in each of two lower anchorages of that system; and

(C) Place the back pan of the H-point machine at the same angle to vertical as the vehicle seat back with the seat adjusted to its full rearward and full downward position and the seat back in its most upright position.

(D) Determine that the part of each tether anchorage (that attaches to a tether hook) is located within the shaded zone shown in **Figures 8 to11.** The inspection result shall be recorded on Data Sheet 3.

12-3.2.3. Tether anchorages (S6.2.1.2) - In the case of a vehicle that has a tether strap **routing device**, perform the following (see 2-3.3):

(A) Determine that if a user-ready tether anchorage is installed and the shade zone in Figure 3 to 7 is not accessible without removing a seating component of the vehicle.

(B) Record the number of the tether anchorages in the vehicle. Verify the actual number of the tether anchorages with the number of the required anchorages as specified in section 2-1 of this test procedure.

(C) Determine the type of routing device (flexible or fixed) used for that seating position.

(D) Adjust the vehicle seat to its full rearward and full downward position and the seat back in its most upright position. Place the template within 7 mm from the vertical plane passing through the seating reference point (see Figure E), and place the H-point of the two-dimensional H-point template, as specified in SAE J826, such that:

(i) If the seating position does not have a child restraint anchorage system: at the SRP that is provided by the COTR; or

(ii) If the seating position has a child restraint anchorage system: at the midway between vertical longitudinal planes passing through the lateral center of the bar in each of two lower anchorage of that system; and

(E) Position the template so that the torso line of the template is at the same angle to the transverse vertical plane as the vehicle seat back.

(F) Determine if a non-rigid routing device or a deployable routing device is not less than **65 mm** behind the torso line for that seating position, measured horizontally and in a vertical longitudinal plane; or

(G) Determine if a fixed routing device is not less than **100 mm** behind the torso line for that seating position, measured horizontally and in a vertical longitudinal plane.

(H) Record the inspection result on Data Sheet 3.

12-3.2.4. Tether anchorage (S6.2.2) - If a vehicle is manufactured from September 1, 1999 to August 31, 2004, and S6.2.2 of the standard 225 is selected as a manufacturer's option (see 2-3.4):

(A) Record the location of seats that have the tether anchorages on Data Sheet 3. Verify the actual number of the tether anchorages with the number of the required anchorages as specified in Section 2-1 of this test procedure.

(B) Measure the location of tether anchorages as follow:

Adjust the vehicle seat to its full rearward and full downward position and the seat back in its most upright position. Place the two-dimensional H-point template within 7 mm from the vertical plane passing through the seating reference point (see Figure E), and place the H-point of the template, as specified in SAE J826, such that:

(i) If the seating position does not have a child restraint anchorage system: at the SRP that is provided by the COTR; or

(ii) If the seating position has a child restraint anchorage system: at the midway between vertical longitudinal planes passing through the lateral center of the bar in each of two lower anchorage of that system; and

(C) Position the template so that the torso line of the template is at the same angle to the transverse vertical plane as the vehicle seat back.

(D) Take a picture of the two-dimensional H-point machine in the seat.

(E) Determine the part of each tether anchorage (that attaches to a tether hook) is located within the shaded zone shown in **Figures 3 to 7**. The result shall be recorded on Data Sheet 3.

12-3.2.5. Tether anchorage (S6.2.2.1) - If a passenger car and a multipurpose passenger vehicle are manufactured before September 1, 2004, and S6.2.2.1 of the standard 225 is selected as an manufacturer's option (see 2-3.6):

(A) Record the location of seats that have the tether anchorages. The record shall be recorded on Data Sheet 3. Verify the actual number of tether anchorages with the number of the required anchorages as specified in Section 2-1 of this test procedure.

(B) Measure the location of tether anchorages as follows:

Adjust the vehicle seat to its full rearward and full downward position and the seat back in its most upright position. Place the two-dimensional H-point template within 7 mm from the vertical plane passing through the seating reference point (see Figure E), and place the H-point of the template, as specified in SAE J826, such that:

(i) If the seating position does not have a child restraint anchorage system: at the SRP that is provided by the COTR; or

(ii) If the seating position has a child restraint anchorage system: at the midway between vertical longitudinal planes passing through the lateral center of the bar in each of two lower anchorages of that system; and

(C) Position the template so that the torso line of the template is at the same angle to the transverse vertical plane as the vehicle seat back.

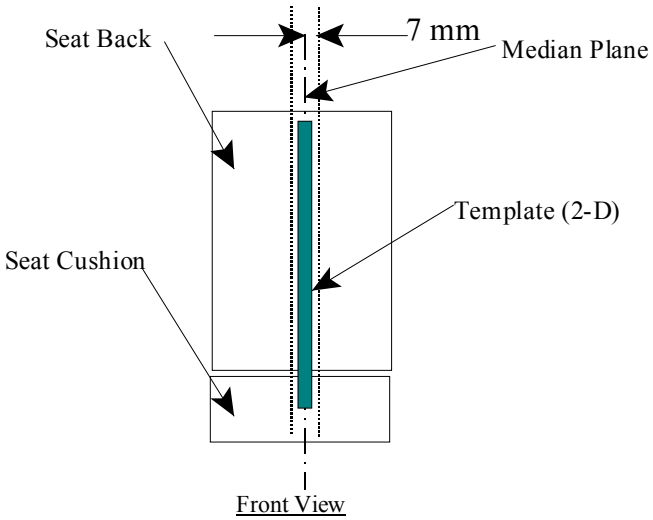


Figure E. Two Dimensional Template Positioning

(D) Take a picture of the two-dimensional H-point machine in the seat.

(E) Determine the part of each tether anchorage (that attaches to a tether hook) is located within the shaded zone shown in **Figure 8 to 11.** The inspection result shall be recorded on Data Sheet 3.

12-3.2.6. Tether anchorage (S6.2.2.2) - If a vehicle is manufactured from September 1, 1999 to August 31, 2004, and has a **tether strap routing device** and the manufacturer's option specified in FMVSS 225, S6.2.2.2 is selected (see 2-3.7).

(A) Record the number of the tether anchorages in the vehicle. Verify the actual number of tether anchorages with the number of the required anchorages as specified in section 2-1 of this test procedure.

(B) Determine the type of routing device (flexible or fixed) used for that seating position.

(C) Adjust the vehicle seat to its full rearward and full downward position and the seat back in its most upright position. Place the two-dimensional template within 7 mm from the vertical plane passing through the seating reference point (see Figure E), and place the H-point of the template, as specified in SAE J826, such that:

(i) If the seating position does not have a child restraint anchorage system: at the SRP that is provided by the COTR; or

(ii) If the seating position has a child restraint anchorage system: at the midway between vertical longitudinal planes passing through the lateral center of the bar in each of two lower anchorage of that system; and

(D) Position the template so that the torso line of the template is at the same angle to the transverse vertical plane as the vehicle seat.

(E) Measure the distance between the torso line and one end of the routing device that connects to the tether strap hook (see Figure B). The measurement shall be made horizontally and in a vertical longitudinal plane.

(F) Determine if a user-ready tether anchorage is installed and not accessible in the shaded zone shown in Figure 3 to7 without removing a seating component of the vehicle.

(G) Take a picture of the two-dimensional H-point machine in the seat.

(H) Record the results (including the type of the routing device) and the measurement on Data Sheet 2.

12-3.3. STATIC LOAD TESTING OF TETHER ANCHORAGE SYSTEM

NOTE If a 50/50 split bench seat has a center tether anchorage, inform the COTR prior to any load application on the anchorage.

A. **Preparation of Test Vehicle**

(1) MODIFICATIONS MADE TO THE VEHICLE IN ORDER TO PERFORM THE TEST SHALL BE KEPT TO A MINIMUM. The test laboratory shall notify and obtain approval from the COTR for any required structural cutting or drilling on test vehicles prior to the conduct of such actions by the test laboratory.

(2) If it appears that the seat belt buckle or webbing may incur loading that may cause it to fail, replace the seat belt webbing and/or buckles in the area of the SFAD 1 with "high strength webbing" or steel wire cable.

Note: The objective is to test the anchorage, not the webbing.

(3) Raise the test vehicle until all 4 wheels are more than 25 mm off the test surface and it is at the curb weight attitude. Secure the test vehicle to prevent lateral and longitudinal movement during the anchorage load application. Test vehicles must

not be restrained by the front or rear bumper systems. Position the loading device so that load application angles will be obtained. (See section 12-2 for additional information.)

(4) (S6.3.4.4) Adjust each seat being tested to its full rearward and full downward position and the seat back to its most upright position. When SFAD2 is used in testing and cannot be attached to the lower anchorages with the seat back in this position, adjust the seat back as recommended by the vehicle manufacturer for attaching child restraints.

(5) Attach the load cells to the load application cables, and connect the load application device to the load cells.

(6) Perform pretest calibration checks on instrumentation prior to testing, and document for inclusion in the final report. Record tolerance range on the tracings, chart, or data paper. If the test is video taped, provide tolerance range indicators (such as label or placard) on instruments so that it shall be apparent that the test was conducted within the test procedure requirements. Identify each recording with date, time, vehicle, NHTSA number, chart speed, if applicable, FMVSS number, X and Y axis names, units of measure and instrument settings. Record the serial numbers of equipments used for each specific load application location.

(S6.3.4.2) If the zones in which tether anchorages are located overlap and if, in the overlap area, a user ready tether anchorage is installed that is designed to accept the tether strap hooks of two restraint systems simultaneously (as illustrated in Figure F), the COTR shall determine which tether anchorage(s) to be tested.

NOTE 1. **Retractor tension limiters, kinetic belt locking mechanism, and other similar devices used for the seat belt shall be in "lock-position" at the preload and during the loading.**

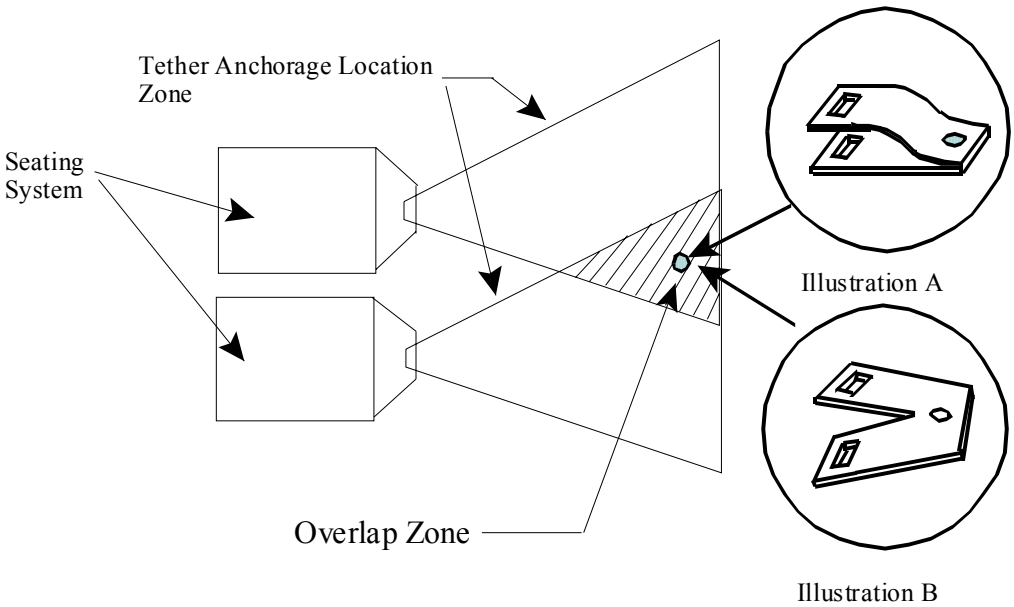


Figure F. Plan View of Overlap Tether Anchorage Zones

NOTE 2. If the vehicle is equipped with adjustable seat belt shoulder anchorage, use the center notch for the compliance test with the SAFD1. If there is no center notch (that is, even number of notches), the notch immediately below the geometric center will be used (see Figure G below).

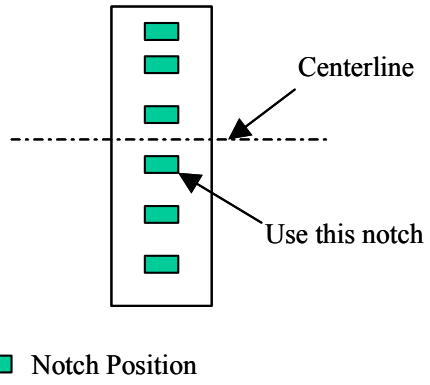


Figure G. Illustration of Notch Position

NOTE 3. (S6.3.4.3) In the case of a row of designated seating positions that has more than one tether anchorage, unless otherwise directed by the COTR, the forces are applied simultaneously to each tether anchorage (see (7) below).

NOTE 4. For the SFAD 1, Type 2 belt webbing will be placed through the side path holes (see Figure T).

(7) In the case of a row of DSPs that has more than one lower anchorage system, measure the center-to-center distance between adjacent seating positions according to the following procedure:

<u>Center-to-center distance measurement procedure:</u>

(7)-1. Locate the lower anchorages.

(7)-2. Locate the midpoint of each bar. To locate the midpoint, use the horizontal section of the bar.

Note. Remove portion of the seat cushion and/or the seat back, if needed.

(7)-3. Locate the midpoint that is equidistance from the midpoints of each of the two lower anchorages at the seating position (as illustrated in Figure G above).

(7)-4. Measure the distance between the vertical longitudinal planes passing through the midpoints of the adjacent seating positions. The measurement shall be made along a line perpendicular to the planes (as illustrated in Figure H below).

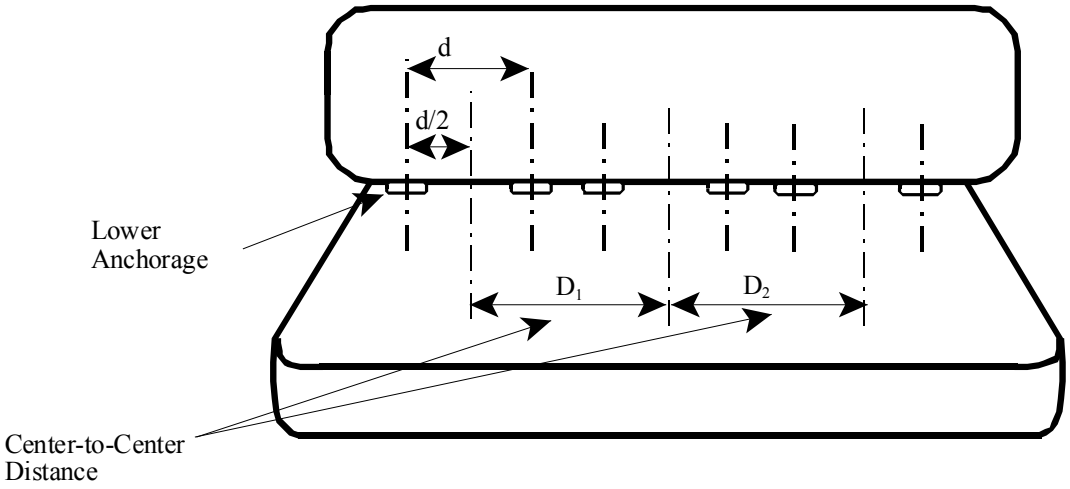


Figure H. Measurement of Distance Between Adjacent Seating Positions for Use in Simultaneous Testing.

If the center-to-center distance is less than **400 mm**, the tether anchorages for the adjacent seating positions shall not be simultaneously loaded.

NOTE. If the center-to-center distances are 400 mm or greater, unless otherwise directed by the COTR, all the tether anchorages on the seat will be loaded simultaneously.

B. **Tether Anchorage** - (S6.3.2) If the vehicle is certified with S6.3.2 of FMVSS 225 by the vehicle manufacturer, use the following test procedure, in lieu of section 12-3.3.C of this test procedure (see 2-4.1):

(1) Verify with the COTR the option used by the manufacturer for certifying the test.

(2) Determine that the vehicle (rear) seat is in the full rearward and full downward position and place the seat back in its most upright position.

(3) Adjust the head restraints in accordance with the manufacturer's instructions, provided with the written instruction for the child anchorage system. If instructions with regard to head restraint adjustment are not provided, adjust the head restraints to a position as directed by the COTR.

(4) (S8.2) Attach a tether hook, as directed by the manufacturer's manual, to the user-ready tether anchorage. Inspect the belt strap and the hook to ensure there is no abnormality, such as extensive cuts and deterioration.

NOTE 1. The tether hook used shall have sufficient strength to withstand the applied force. The tether hook shall meet the specifications in

Standard No. 213 as to the configuration and geometry of the tether hooks required by that standard.

NOTE 2. The belt strap shall be of sufficient strength to withstand the applied force. The width of the belt strap shall be not less than 40 mm.

(5) Place the **belt strap** over the top of the vehicle seat back, as indicated in Figure 19 (on page 80).

(6) Locate the rear edge of the vehicle seat back. Determine the vertical transverse plane touching the rear edge of the vehicle seat back (see Figure R).

(7) Straighten the belt strap by pulling the free end. Do not apply excessive force.

NOTE 1. Use a string potentiometer or a similar device to measure the displacement at the anchorage, as illustrated in Figure I.

NOTE 2. If a string potentiometer is used, the potentiometer should be positioned as close as practicable to the belt strap.

NOTE 3. Steel cable or chain may be used to pull the **belt strap**. However, the cable (or chain) shall not contact the seat back during the loading.

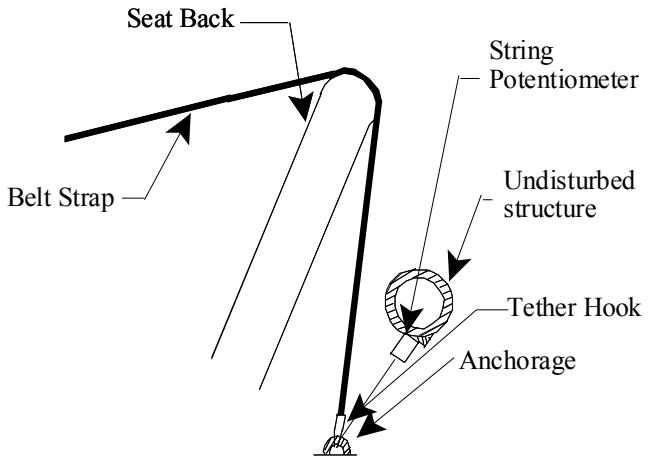


Figure I-A. Examples of cross sectional view of the setup.

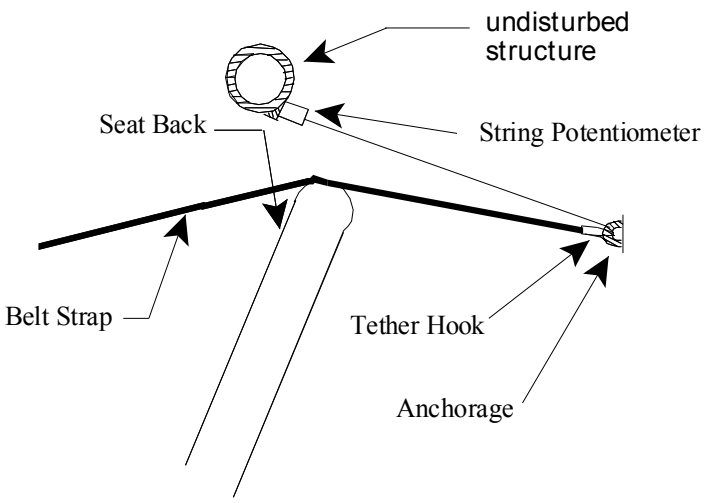


Figure I-B. Examples of cross sectional view of the setup.

The measured angle with the potentiometer (or a similar device) shall be used to calculate the horizontal displacement of the anchorage, as follows:

$$L = \cos\theta_i . l$$

l: measurement with the string potentiometer
2_i: initial angle
L: Calculated displacement of the anchorage

NOTE 5: The initial angle shall be less than 20 degrees.

NOTE 6. If the tether anchorage is installed on the seat back, inform the COTR. **Do not install any structure to support the seat back**.

(8) Measure the belt strap extension to determine that the length of the belt strap forward of the vertical transverse plane (see Figure R) is in excess of 250 mm.

NOTE. For the case where the anchorages are attached to the common seat frame and the center-to-center distances are 400 mm or greater, all the seat anchorages on the transverse plane will be loaded simultaneously, unless otherwise directed by COTR.

(9) Initially, apply a force (500+0/-50 N) at the free end of the **belt strap** in the forward direction in a vertical longitudinal plane that is parallel to the vehicle's longitudinal centerline. The force (preload) shall be applied within 5 degrees from the vertical longitudinal plane.

(10) Initially, apply the force along a horizontal line with a tolerance of **±20** degrees.

(11) Record the initial location of the tether anchorage with respect to the vehicle structure (non-deformable).

NOTE 1. If the **belt strap** does not compress the seat back or other vehicle components during the test, the displacement of the tether anchorage can be measured based on the initial and the final positions of the piston.

NOTE 2. Unless otherwise directed by the COTR, output from the load cells shall not be (electronically) filtered. Unless otherwise directed by COTR, the sampling rate shall not be less than100 data points per second.

NOTE 3. The load cell shall be selected such that the anticipated maximum load (i.e., 5,250 N) is in between 10% and 90% of the load capacity of the load cell.

(12) Increase the force so that 5,250 +0, -150 N is attained within 26±3 seconds from the preload, as illustrated in Figure J. (S8.2(b)(3))

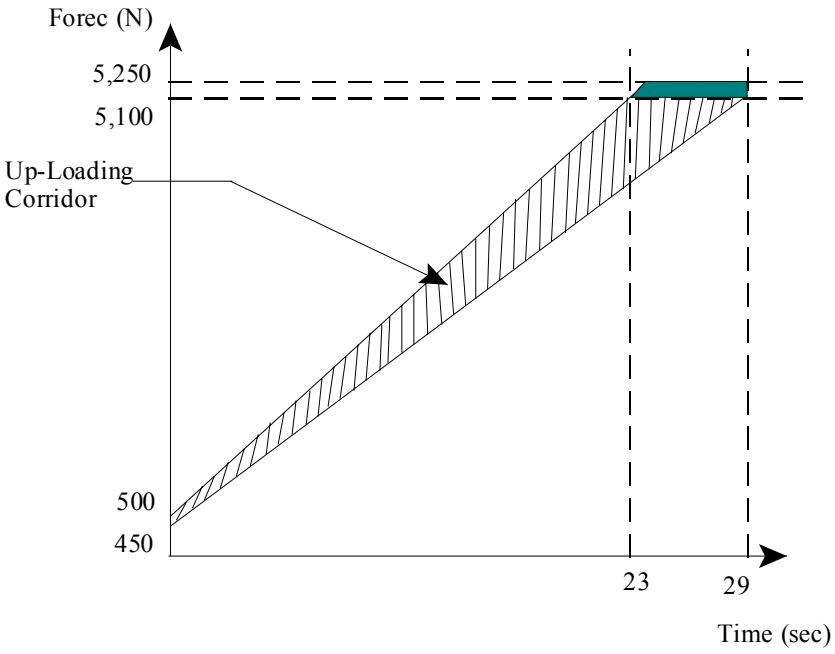


Figure J. Up Loading Profile

NOTE 1. If the target load (5,250 +0, -150 N) is not attainable within 26±3 seconds, inform the COTR.

NOTE 2. Once the onset rate is selected, do not vary the onset rate until the force reaches to 5,250 +0, -150 N.

NOTE 3. During ramping up from the initial load (of 500 +0/-50 N) to the target load, any displacement of the anchorage greater than 125 mm will be considered as a failure of the anchorage.

(13) Maintain the force at 5,250 +0, -150 N for a minimum of 1 second and a maximum of 10 seconds.

Table 12. Parameters for the force application (specified in 12-3.3.B)

	Force (N)	Duration (sec.)	Angle against the vertical plane (degree)	Angle against the horizontal plane (degree)
Pre-load	500 +0/-50	N/A	0±5	±20
At the target load	5,250 +0/-150	Min.: 1, Max.: 10	N/A	N/A

(14) Continually record the displacement of the anchorage with respect to time.

(15) Reduce the force gradually within 30 seconds.

(16) Record the forces applied, onset rates used, positions of the belt strap, hold time on Data sheet 4.

C. **Tether Anchorage** (6.3.1)- If the vehicle is certified with S6.3.1 of FMVSS 225 by the manufacturer, use the following procedure:

(1) Verify with the COTR the option used by the manufacturer for certifying the strength requirement.

(2) Determine that the vehicle seats are in the full rearward and full downward position and the seat back is placed in its most upright position.

(3) Adjust the head restraints in accordance with the vehicle manufacturer's instructions, provided with the written instruction for the child anchorage system. If instructions with regard to head restraint adjustment are not provided, adjust the head restraints to a position as directed by the COTR.

(4) Determine if the SFAD is adequate for applying the force to the tether anchorage.

NOTE 1. The hook on the SFAD which attaches to tether anchorage shall have sufficient strength to withstand the applied force.

NOTE 2. Use a steel cable (or chain) to connect the point "X" on the SFAD and the loading device.

NOTE 3. Prior to the attachment, inspect the hook to ensure the inside surface has no sharp corners.

(5) Inspect the tether cable to ensure there is no abnormality, such as extensive cuts and deterioration.

(6) If the designated seating position does not have the two lower child restraint anchorages, use SFAD 1 to test the tether anchorage. In a case where there are adjustable seat belt shoulder anchorage points, use the center position for the compliance test. If there is no center position, a notch immediately below the center will be used (see Figure G below).

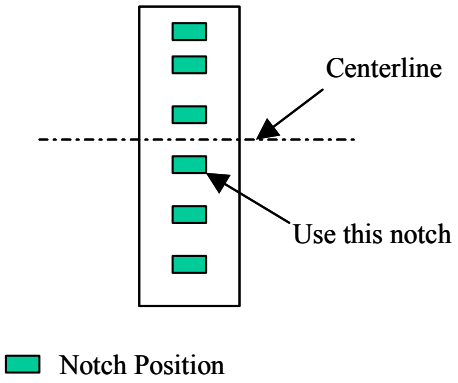


Figure G. Illustration of Notch Position for Shoulder Seat Belt Anchor

(7) If the designated seating position does have the two lower child restraint anchorages, use SFAD 2 to test the tether anchorage.

(8) For the SFAD 1, attach the test device to the vehicle seat belt by placing the safety belt webbing through the side path holes and then attach the tether anchorage. For the SFAD2, attache the test device to the lower anchorages and attach the tether anchorage (see figures N and T).

NOTE 1. For the SFAD 1, the Type 2 belt webbing shall be placed through the side path holes (see Figure T.)

NOTE 2. If the SFAD 1 cannot be attached using the vehicle belts because of the location of the vehicle belt buckle, the test device (SFAD 1) shall be attached using material whose breaking strength is greater than the breaking strength of the webbing for the seat belt assembly installed as original equipment at that seating position.

NOTE 3. For the SFAD 1, apply a reward force of 135±15N, in a horizontal plane through Point "X" of the SFAD 1. While maintaining the force, tighten the vehicle seat belt to a tension of not less than 53.5 N and not more than 67 N measured at the lap portion of the seat belt and maintain the tension during the preload, and tighten the tether belt strap to remove all slack and lock the seat belt retractor.

NOTE 4. For SFAD 2, loosen the bolts (4 of them) after attaching the latches (of the SFAD 2) to the (lower) anchorage bars. With the bolts loosened, position the SFAD 2 against the seat back (such that it compresses the seat back). Apply a reward force of 135±15N, parallel to the horizontal plane of the vehicle, to the center of the lower front cross member of the SFAD 2. Tighten up the bolts while maintaining the force (see Figure K). The tether belt shall be tightened to remove all slack.

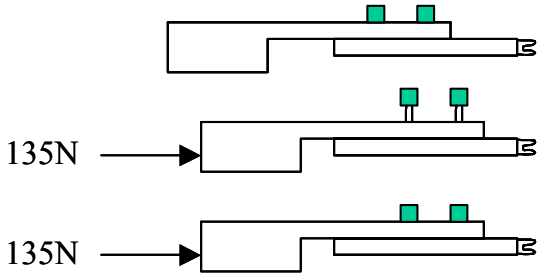


Figure K. SFAD 2 Installation – Side View

NOTE 5. Determine that the SFAD 2 is firmly attached. If the SFAD 2 cannot be attached to the anchorages, inform the COTR.

(9). For the case where the child restraint anchorages are attached to the common seat frame, all the child restraint anchorages on the transverse plane will be loaded simultaneously, unless otherwise directed by the COTR (see 12-3.3.A(7)).

(10) Initially, apply a force of 500 +0/-50 N (see Figure M) at the point "X" of the SFAD in the forward direction in a vertical longitudinal plane that is parallel to the vehicle's longitudinal centerline (see Figures 13 and 17). The force shall be applied within 5 degrees from the vertical longitudinal plane (see Figure P).

(11) Initially, the force shall be applied along a horizontal line with a tolerance of 10±4 degrees (see Figure L).

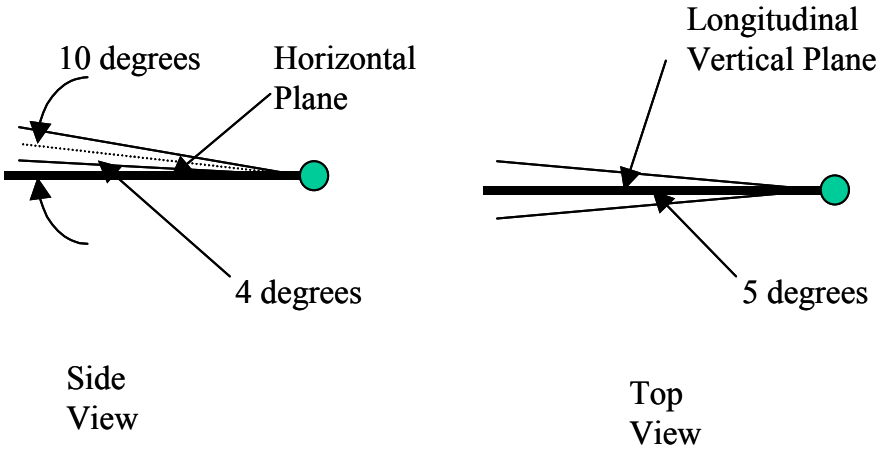


Figure L. Initial Angles

NOTE 1. With the SFAD 1, if the seat belt webbing at a particular Designated Seating Position (DSP) breaks during the test, the anchorage test for that DSP is terminated at that point and so noted on the data sheet. This would also apply to failed webbing hardware such as buckles and latch plates. Testing with unbroken belts at the other DSPs shall continue to completion.

NOTE 2. With the SFAD 1, if the seat belt webbing breaks or a loading cylinder runs out of stroke, the contractor will reload these anchorages and continue to test after completing the anchorage test with the unbroken belts and anchorages.

(12) Measure the angle from the horizontal from Point "X." If the measured angle is not within **10±4 degrees** then reduce the force and adjust the force direction, and repeat (10) above, and (9) if needed. Record the angle.

(13) Record the initial location of the tether anchorage measured at Point "X" with respect to the vehicle structure. (The linear displacement of Point "X" can be measured with a string potentiometer attached to the vehicle structure.)

(14) (S8.1(c)(3)) Increase the load linearly to 14,950+0, - 200 N in not less than 23 seconds and not more than 29 seconds, and maintain at that level for a minimum of 1 second and a maximum of 10 seconds.

NOTE 1. Once the onset rate is selected, do not vary the onset rate until the force reaches to 14,950 +0, -200 N.

NOTE 2. Any momentary drop of the load (measured) during a period of 30 seconds from the preload will not cause a failure of the anchorage.

Table 13. Parameters for the force application (specified in 12-3.3.C)

	Force (N)	Duration (sec.)	Angle against the vertical plane (degree)	Angle against the horizontal plane (degree)
Pre-load	500+0/-50	N/A	0±5	10±4
At the target load	14,950 +0/-200	Min.: 1, Max.: 10	N/A	N/A

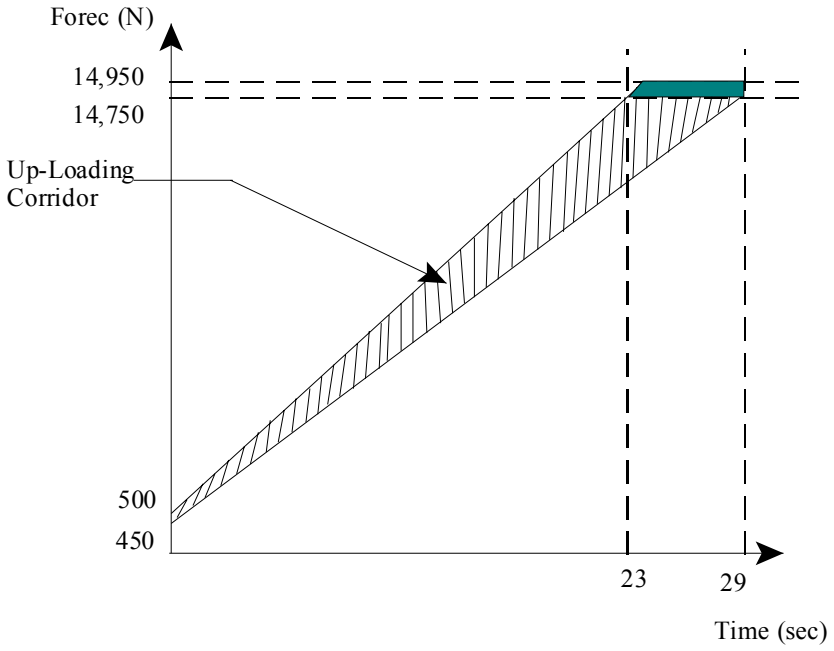


Figure M. Loading Profile

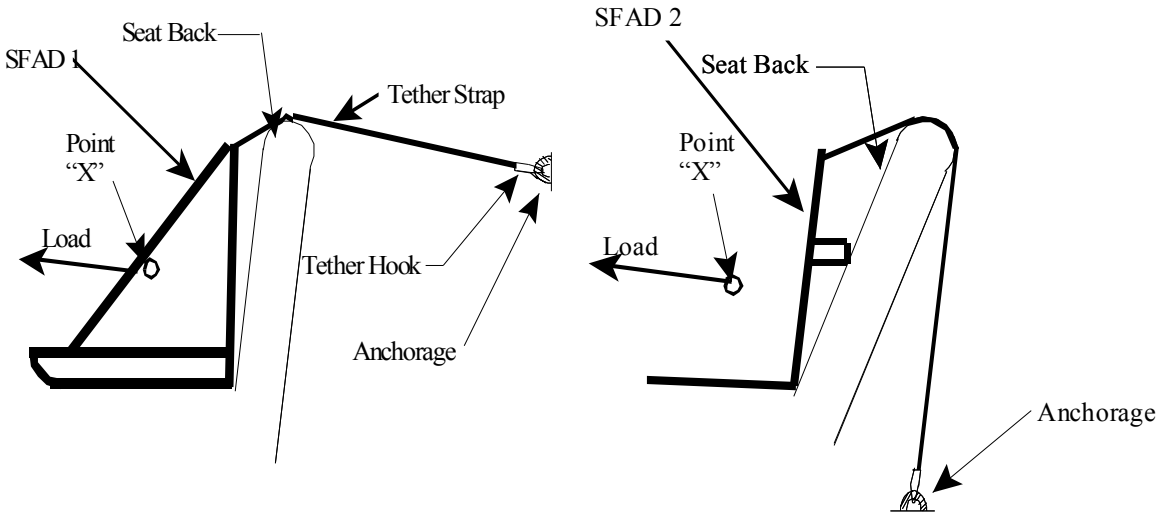


Figure N. Illustration of SFAD setup

(15) Record the displacements of Point "X."

(16) For Point "X," calculate the horizontal displacement based on the measured displacement (with a string pot) and the initial angle measured. Record the calculated horizontal displacement.

(17) Record the forces applied, onset rates used, and hold time on Data sheet 5.

D. **Tether Anchorage** (6.3.4)- If the vehicle is certified with S6.3.2 of FMVSS 225 by the manufacturer, use the following test procedure, in lieu of 12-3.3.C of this test procedure (see 2-4.2(2)):

(1) Verify with the COTR the option used by the manufacturer for certifying the strength requirement.

(2) Determine that the vehicle seats are in the full rearward and full downward position and place the seat back in its most upright position.

(3) Adjust the head restraints in accordance with the vehicle manufacturer's instructions, provided with the written instruction for the child anchorage system. If instructions with regard to head restraint adjustment are not provided, adjust the head to a position as directed by the COTR.

(4) Identify if the designated seating position (DSP) that has a child anchorage system (tether and lower anchorages). If the DSP has the child anchorage system, use SFAD 2 to test the tether anchorage. Otherwise, use SFAD 1.

(5) Attach the SFAD, to the tether anchorage.

NOTE 1. If SFAD 1 is used, inspect the seat belt and the tether strap to ensure there is no abnormality, such as extensive cuts and deterioration.

NOTE 2. For the SFAD 1, apply a reward force of 135±15N, in a horizontal plane through Point "X" of the SFAD 1. While maintaining the force, tighten the vehicle seat belt to a tension of not less than 53.5 N and not more than 67 N measured at the lap portion of the seat belt and maintain the tension during the preload, and tighten the tether belt strap to remove all slack and lock the seat belt retractor.

NOTE 3. If SFAD 2 is used, loosen the bolts (4 of them) after attaching the latches (of the SFAD 2) to the anchorage bars. With the bolts loosened, position the SFAD 2 against the seat back (such that it compresses the seat back). Apply a reward force of 135±15N, parallel to the horizontal plane of the vehicle, to the center of the lower front cross member of the SAFD 2. Tighten up the bolts while maintaining the force (see Figure K). The tether belt shall be tightened to remove all slack.

(6) Determine that the SFAD is firmly attached.

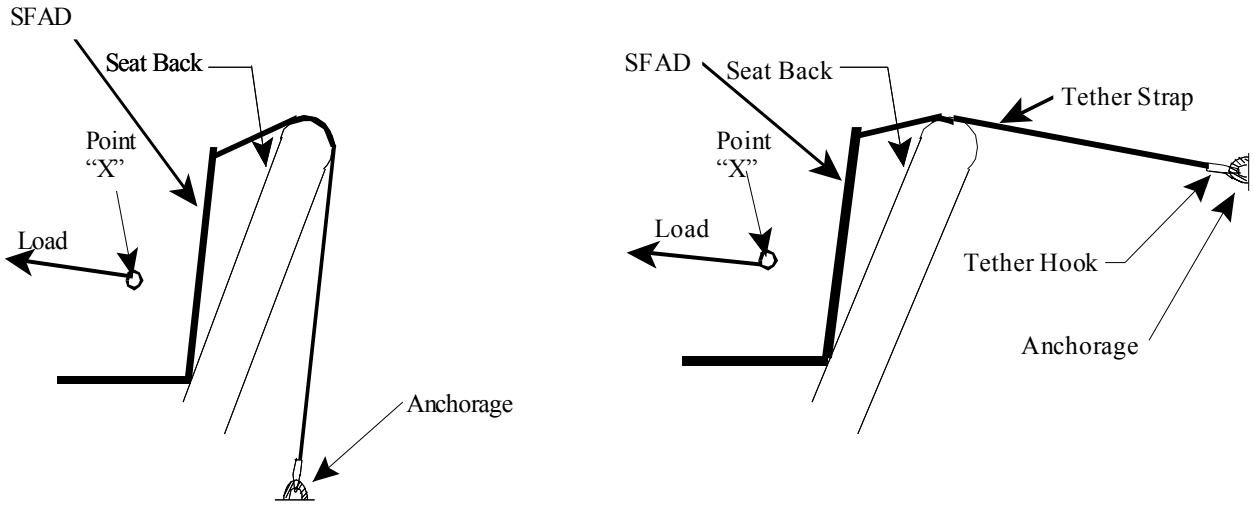


Figure O. Illustration of the **SFDA 2** setup.

NOTE. If the SFAD cannot be attached to the anchorages, inform the COTR.

(7) Initially, apply a force of 500 +0/-50 N (see Figure Q) at the point "X" of the SFAD in the forward direction in a vertical longitudinal plane that is parallel to the vehicle's longitudinal centerline. The force shall be applied within 5 degrees from the vertical longitudinal plane. See Figure P.

(8) (S6.3.4(b)(2)) Initially, along a horizontal line with a tolerance of ±4 degrees. See Figure P.

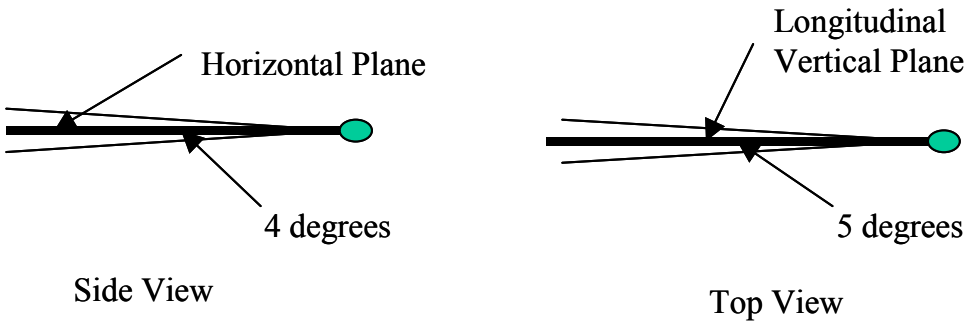


Figure P. Initial Angles

(9) Record the initial location of the tether anchorage and Point "X" with respect to the vehicle structure. (The linear displacement can be measured with a string pot attached to the vehicle structure.)

NOTE 1. Unless otherwise directed by the COTR, output from the load cells shall not be (electronically) filtered. Unless otherwise directed by COTR, the sampling rate shall not be less than100 data points per second.

NOTE 2. The load cell shall be selected such that the anticipated maximum load (i.e., 9,950 N) is in between 10% and 90% of the load capacity of the load cell.

(10) Increase the force so that 9,950 +0, -450 N is attained within 26±3 seconds from the preload.

NOTE 1. If the target load (9,950 +0, -450 N) is not attainable within 26±3 seconds, inform the COTR.

NOTE 2. Once the onset rate is selected, do not vary the onset rate until the force reaches to 9,950 +0, -450 N.

NOTE 3. During the load application, if the piston ran out of the stroke, adjust the piston stroke and continue the loading.

NOTE 4. In the event of any structural yielding of the anchorage or the surrounding structure, unless there is a total separation of the anchorage(s), do not terminate the loading during the loading application.

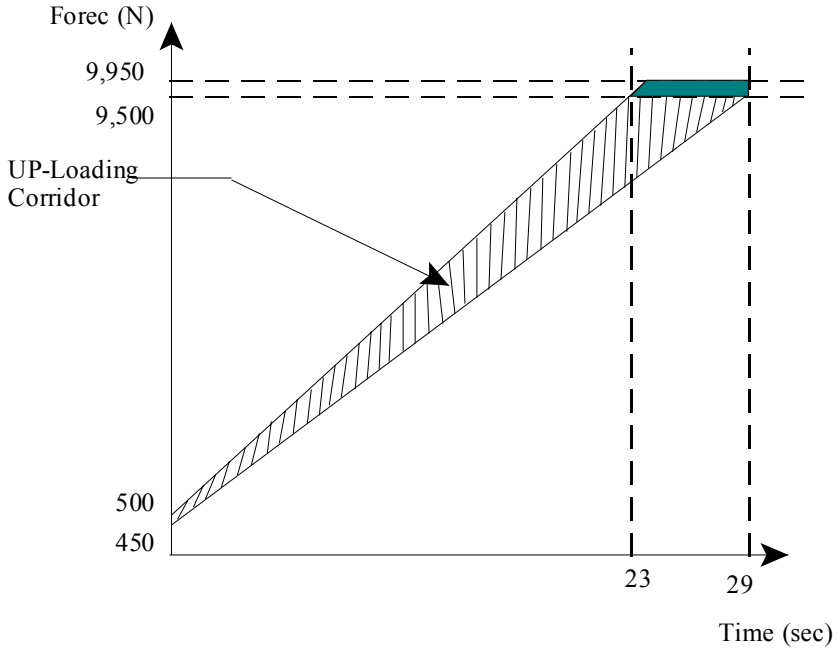


Figure Q. Up Loading Profile

(11) Maintain the force at 9,950 +0, -450 N for a minimum of 1 second and a maximum of 10 seconds.

(12) Continually record the displacement of the anchorage and Point "X." Record if there is **complete separation of the anchorage.** The displacement can be measured stroke of the force application from piston.

(13) Reduce the force gradually within 30 seconds.

Table 14. Parameters for the force application (specified in 12-3.3.D)

	Force (N)	Duration (sec.)	Angle against the vertical plane (degree)	Angle against the horizontal plane (degree)
Pre-load	500 +0/-50	N/A	0±5	±4
At the target load	9,950 +0/-450	Min.: 1, Max.: 10	N/A	N/A

(14) Record the forces applied, onset rates used, displacement of the anchorage and Point "X" and hold time on Data sheet 4.

E **Tether Anchorage** - (S6.3.4.1) If the vehicle is certified with S6.3.4.1 of FMVSS 225 by the manufacturer, use the following procedure (see 2-4.4):

(1) Verify with the COTR the option used by the manufacturer for certifying the strength requirement.

(2) Determine that the vehicle (rear) seat is in the full rearward and full downward position and the seat back is placed in its most upright position.

(3) Adjust the head restraints in accordance with the manufacturer's instructions, provided with the written instruction for the child anchorage system. If instructions with regard to head restraint adjustment are not provided, adjust the head restraints to a position as directed by the COTR.

(4) Attach a tether hook to the user-ready tether anchorage as stated in the manufacturer's manual. Inspect the tether strap to ensure there is no abnormality, such as extensive cuts and deterioration.

NOTE 1. The tether hook used shall be of sufficient strength to withstand the applied force.

NOTE 2. The tether hook shall meet the specifications in Standard No. 213 as to the configuration and geometry of the tether hooks required by that standard.

NOTE 3. The belt strap shall be of sufficient strength to withstand the applied force. The width of the belt strap shall be not less than 40 mm.

(5) Place the **belt strap** over the top of the vehicle seat back, as indicated in Figure 19.

(6) Locate the rear most edge of the vehicle seat back. Determine the vertical transverse plane touching the rear edge of the vehicle seat back (see Figure R).

(7) Straighten the belt strap by pulling the free end. Do not apply excessive force.

(8) Measure the belt strap extension to determine that the length of the belt strap forward of the vertical transverse plane (see Figure R) is in excess of 250 mm.

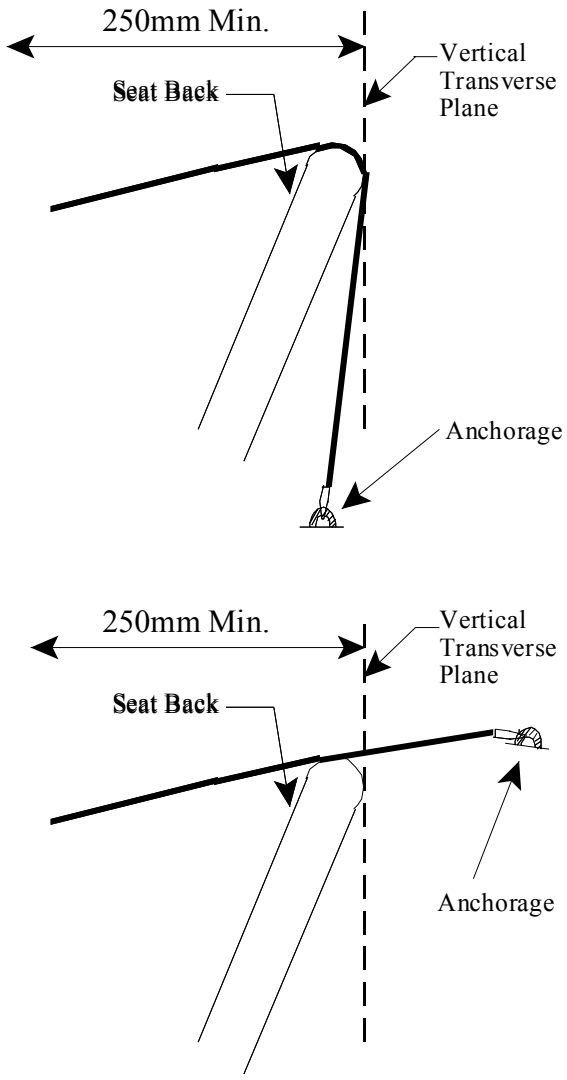


Figure R. Vertical Transverse Plane

NOTE. For the case where the child restraint anchorages are attached to the common seat frame, all the seat anchorages on the transverse plane will be loaded simultaneously, unless otherwise as directed by the COTR.

(9) Initially, apply a force of 500 +0/-50 N at the free end of the belt strap in the forward direction in a vertical longitudinal plane that is parallel to the vehicle's longitudinal centerline. The force shall be applied within 5 degrees from the vertical longitudinal plane.

(10) Initially, the force must be applied along a horizontal line or along any line that is within **20 degrees below** the horizontal line.

NOTE 1. Unless otherwise directed by the COTR, output from the load cells shall not be (electronically) filtered. Unless otherwise directed by COTR, the sampling rate shall not be less than100 data points per second.

NOTE 2. The load cell shall be selected such that the anticipated maximum load (i.e., 5,250 N) is in between 10% and 90% of the load capacity of the load cell.

NOTE 3. Do not support the seat back.

(11) At the initial load (of 500+0/-50 N), measure the angles and adjust the belt strap direction per (9) above, if needed.

(12) Increase the force so that 5,250 +0, -150 N is attained within 26±3 seconds from the preload as illustrated below:

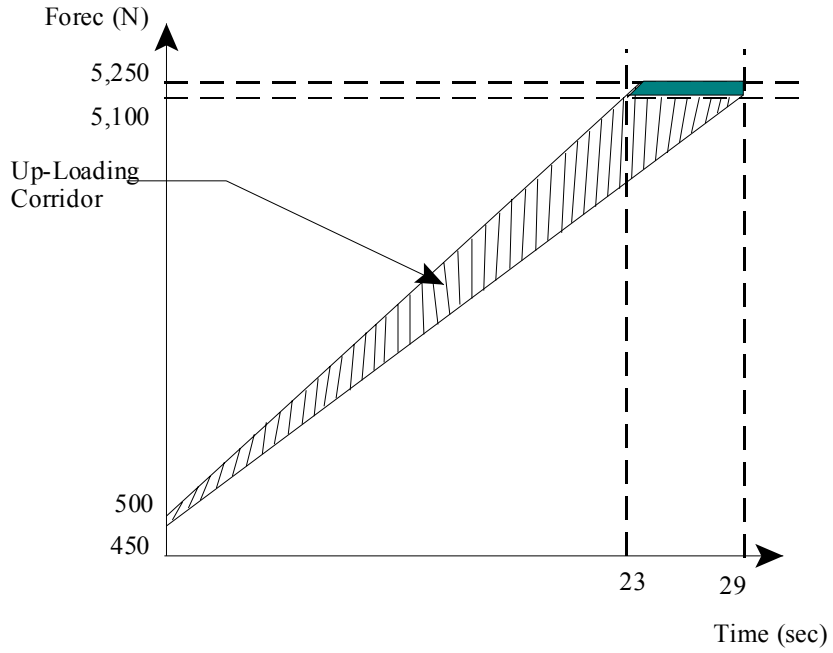


Figure S. Up Loading Profile

NOTE 1. If the target load (5,250 +0, -150 N) is not attainable within 26±3 seconds, inform the COTR.

NOTE 2. Once the onset rate is selected, do not vary the onset rate until the force reaches to 5,250 +0, -150 N.

NOTE 3. During the load application, if the piston ran out of the stroke, adjust the piston stroke and continue the loading.

NOTE 4. During the loading application, if any structural yielding of the anchorage or the surrounding structure occurrs within 29 seconds from the preload, do not terminate the loading.

(13) Maintain the force at 5,250 +0, -150 N for a minimum of 1 second and a maximum of 10 seconds.

(14) Continually record the displacement of the anchorage with respect to time.

(15) Reduce the force gradually within 30 seconds.

(16) Perform a visual inspection on the anchorage, and record any deformation on Data sheet 4.

Table 15. Parameters for the force application (specified in 12-3.3.E)

	Force (N)	Duration (sec.)	Angle against the vertical plane (degree)	Angle against the horizontal plane (degree)
Pre-load	500+0/-50	N/A	0±5	Below 20
At the target load	5,250 +0/-150	Min.: 1, Max.: 10	N/A	N/A

(17) Record the forces applied, onset rates used, displacement of the anchorage, hold time on Data sheet 4.

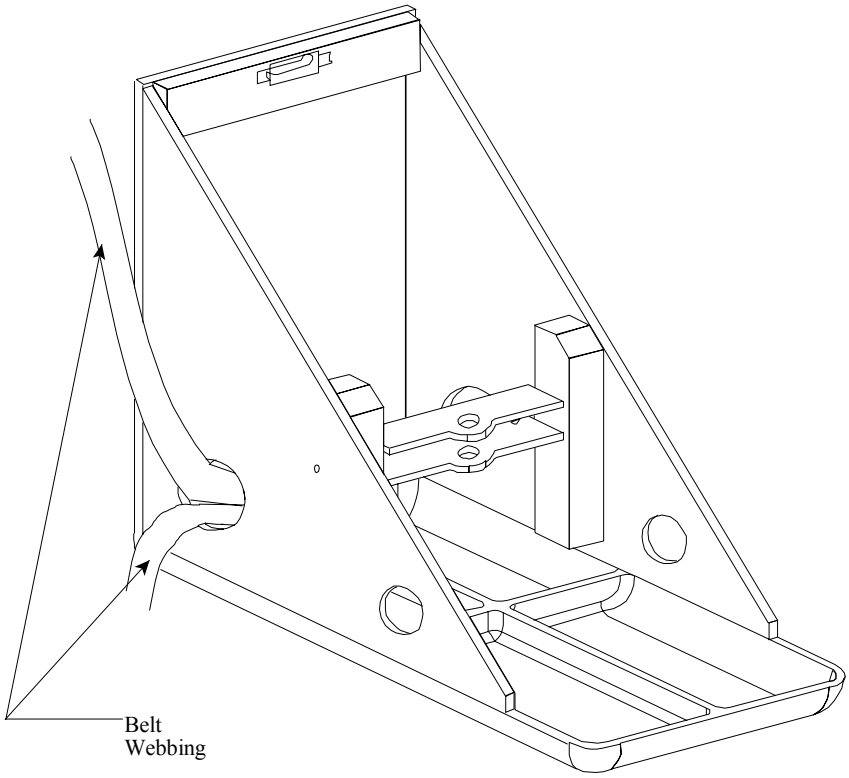


Figure T. Type 2 Belt Routing

Reserved

Figure 1. Child Restraint Fixture (CRF)

Reserved

Figure 1A. Child Restraint Fixture (CRF) with the side panels removed

Reserved

Figure 2. Child Restraint Fixture (CRF)

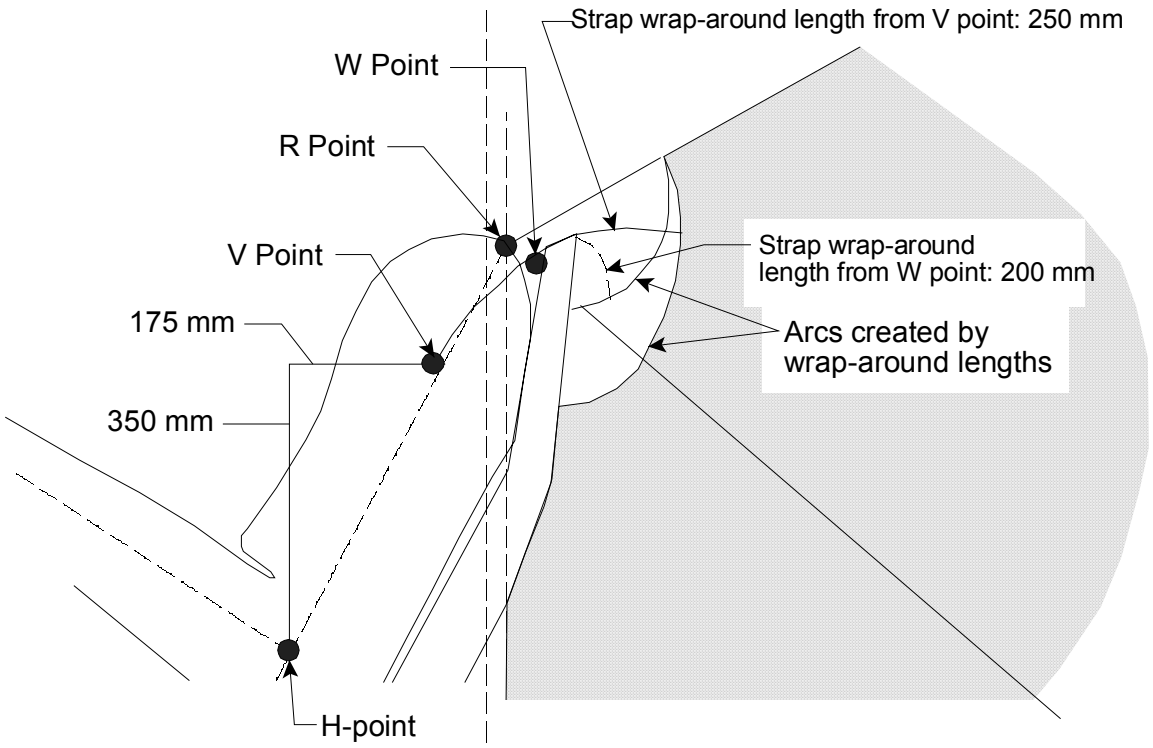


Figure 3. Side View, User -ready Tether Anchorage Location

Notes

1. Dimensions in mm, except where otherwise indicated
2. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
3. Drawing not to scale
4. "R" Point: Shoulder reference point
5. "V" Point: V-reference point, 350 mm vertically above and 175 mm horizontally back from H-point
6. "W" Point: W-reference point, 50 mm vertically below and 50 mm horizontally back from "R" Point
7. "M" Plane: M-reference plane, 1 000 mm horizontally back from "R" Point

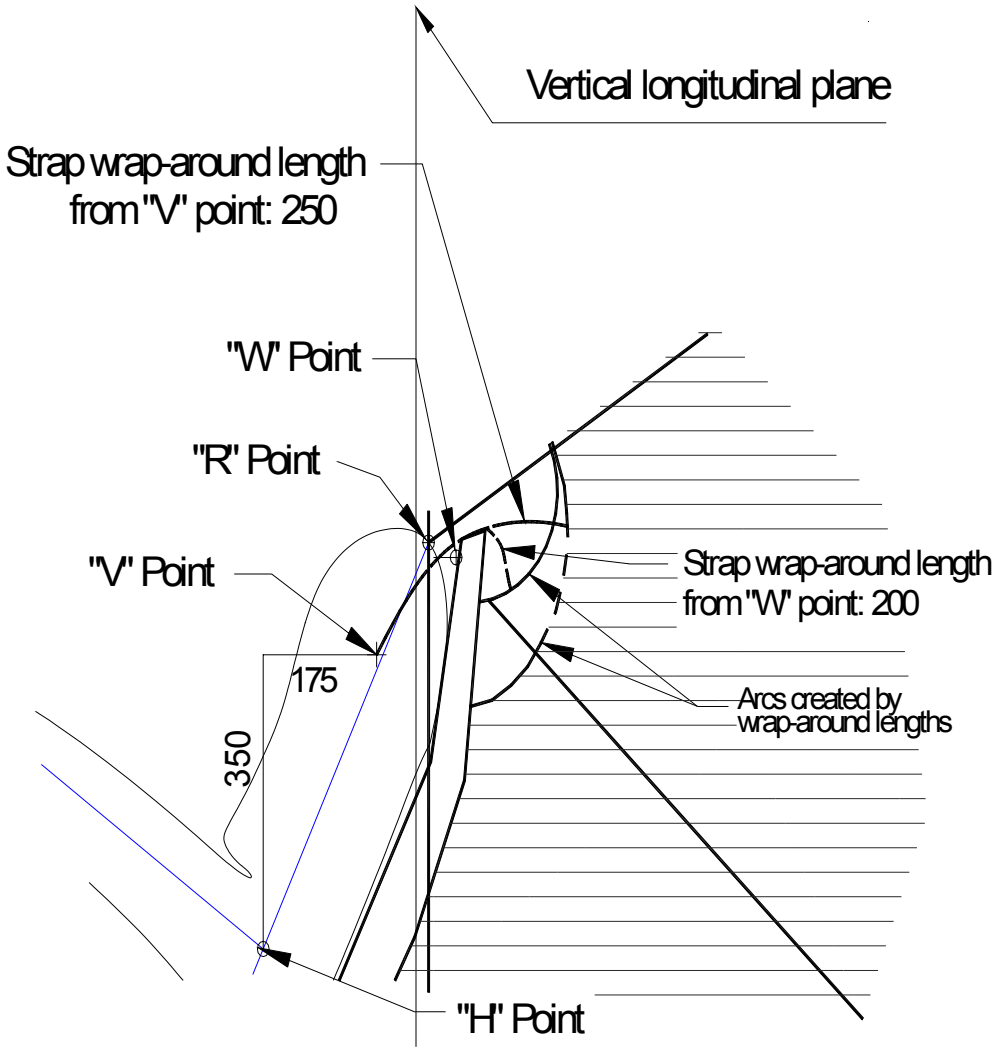


Figure 4 - Enlarged Side View of Strap Wrap-around Area, User-ready Tether Anchorage Location

Notes

1. Dimensions in mm, except where otherwise indicated
2. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
3. Drawing not to scale
4. "R" Point: Shoulder reference point
5. "V" Point: V-reference point, 350 mm vertically above and 175 mm horizontally back from H-point
6. "W" Point: W-reference point, 50 mm vertically below and 50 mm horizontally back from "R" Point
7. "M" Plane: M-reference plane, 1 000 mm horizontally back from "R" Point

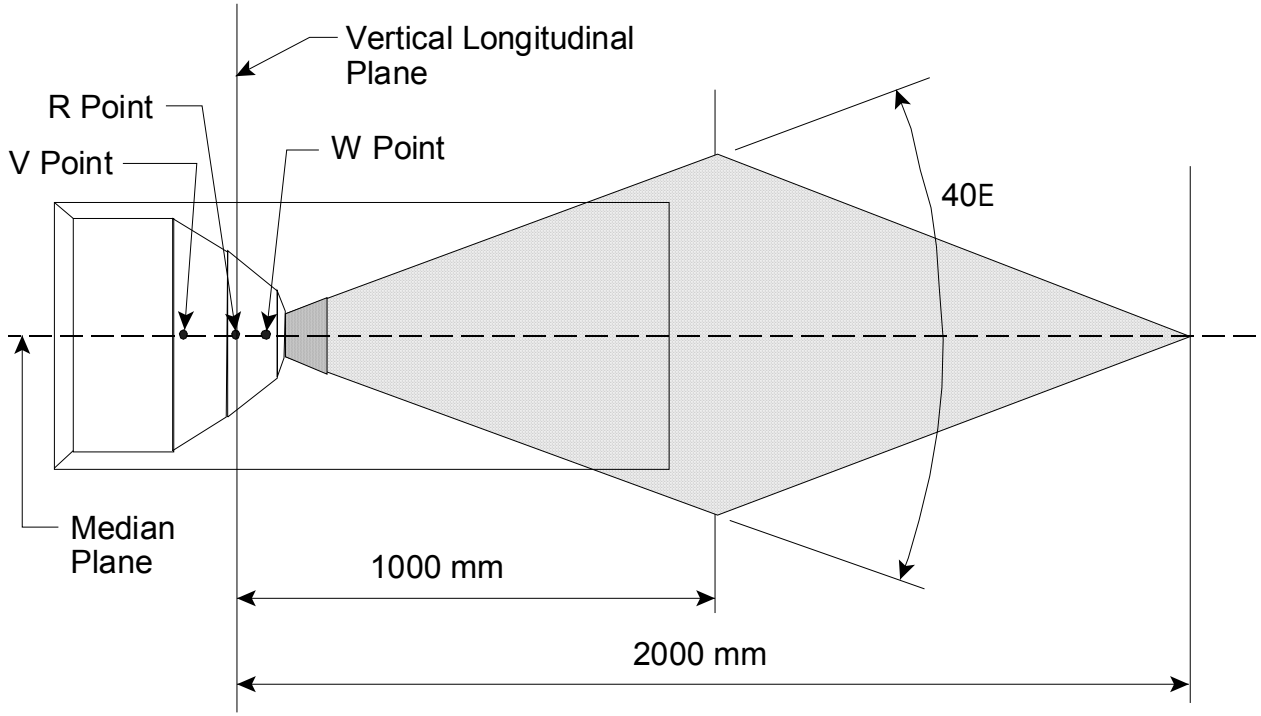


Figure 5 - Plan View (R-Plane Cross Section), User-ready Tether Anchorage Location

Notes

1. Dimensions in mm, except where otherwise indicated
2. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
3. Drawing not to scale
4. "R" Point: Shoulder reference point
5. "V" Point: V-reference point, 350 mm vertically above and 175 mm horizontally back from H-point
6. "W" Point: W-reference point, 50 mm vertically below and 50 mm horizontally back from "R" Point

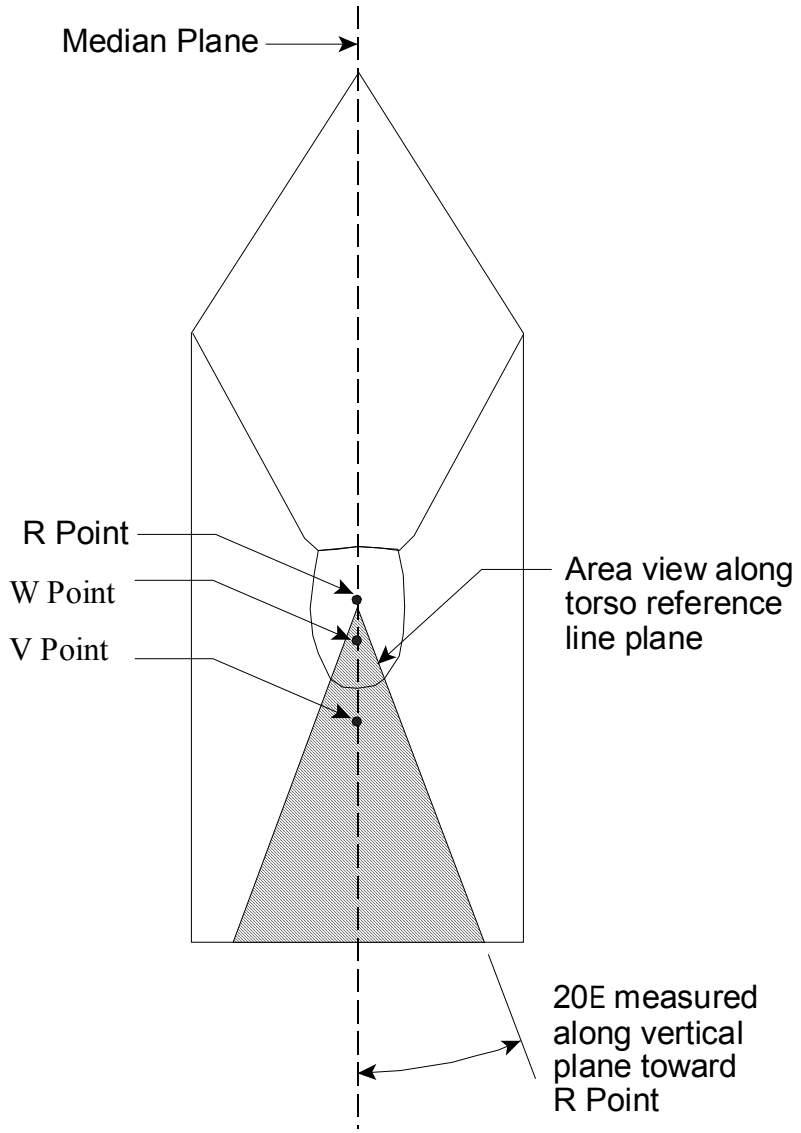


Figure 6. Front View, User-ready Tether Anchorage Location

Notes
1. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
2. Drawing not to scale
3. "R" Point: Shoulder reference point
4. "V" Point: V-reference point, 350 mm vertically above and 175 mm horizontally back from H-point
5. "W" Point: W-reference point, 50 mm vertically below and 50 mm horizontally back from "R" Point

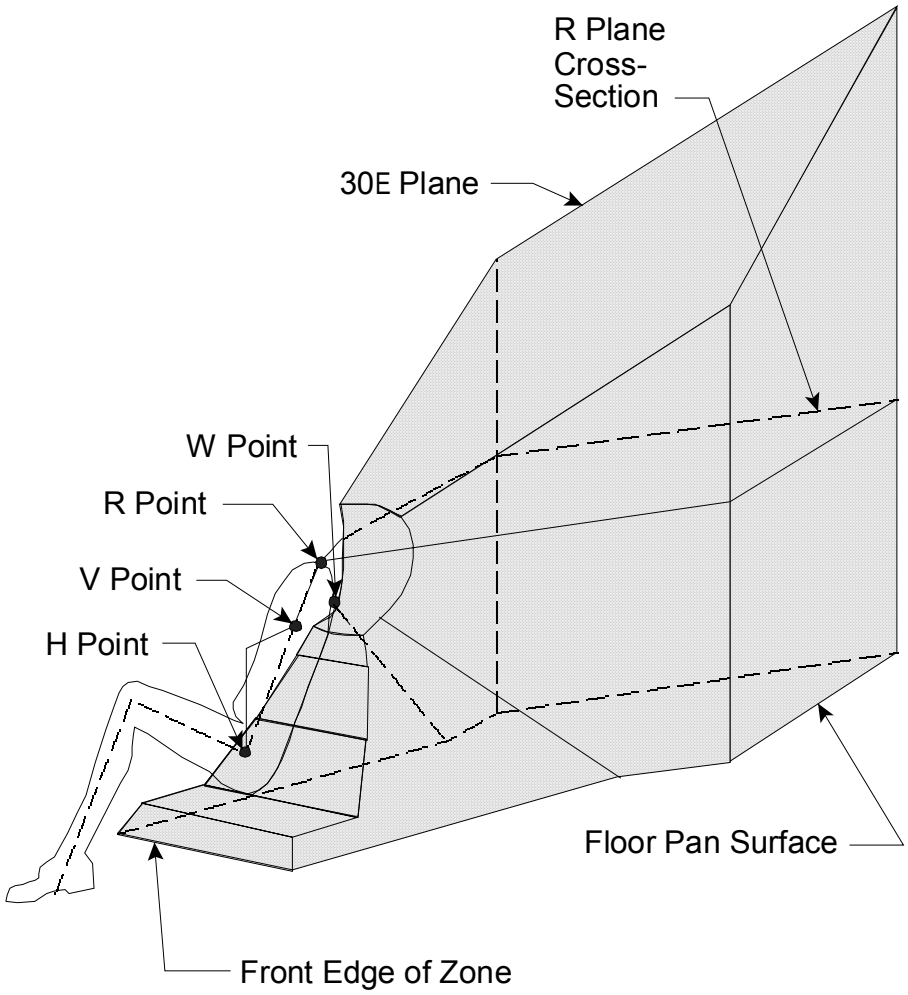


Figure 7. Three-dimensional Schematics View of User-ready tether Anchorage Location

Notes

1. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
2. Drawing not to scale
3. "R" Point: Shoulder reference point
4. "V" Point: V-reference point, 350 mm vertically above and 175 mm horizontally back from H-point
5. "W" Point: W-reference point, 50 mm vertically below and 50 mm horizontally back from "R" Point

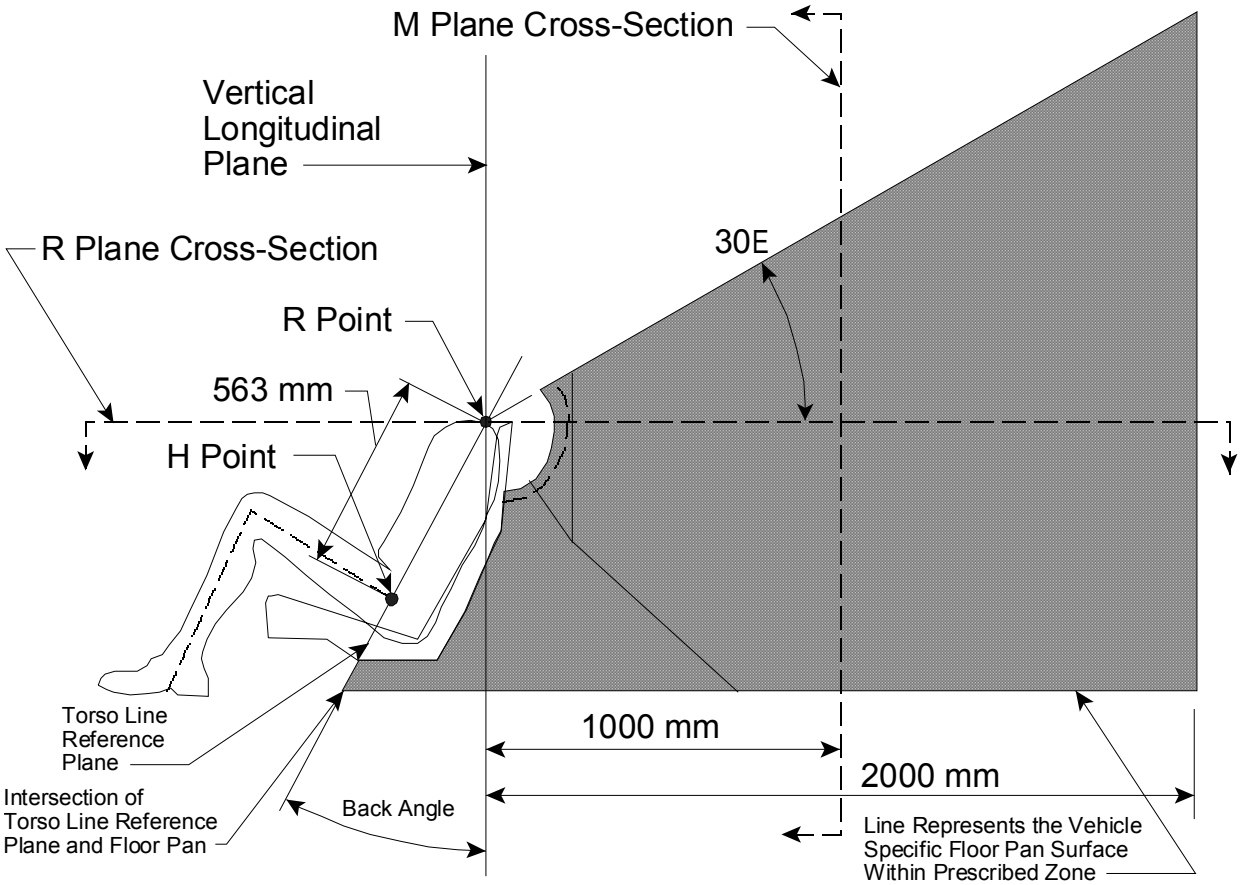


Figure 8. Side View, User-ready Tether Anchorage Optional Location for Passenger Cars and Multipurpose Passenger Vehicles Until September 1, 2004.

Notes

1. Dimensions in mm, except where otherwise indicated
2. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
3. Drawing not to scale
4. "R" Point: Shoulder reference point
5. "M" Plane: M-reference plane, 1 000 mm horizontally back from "R" Point

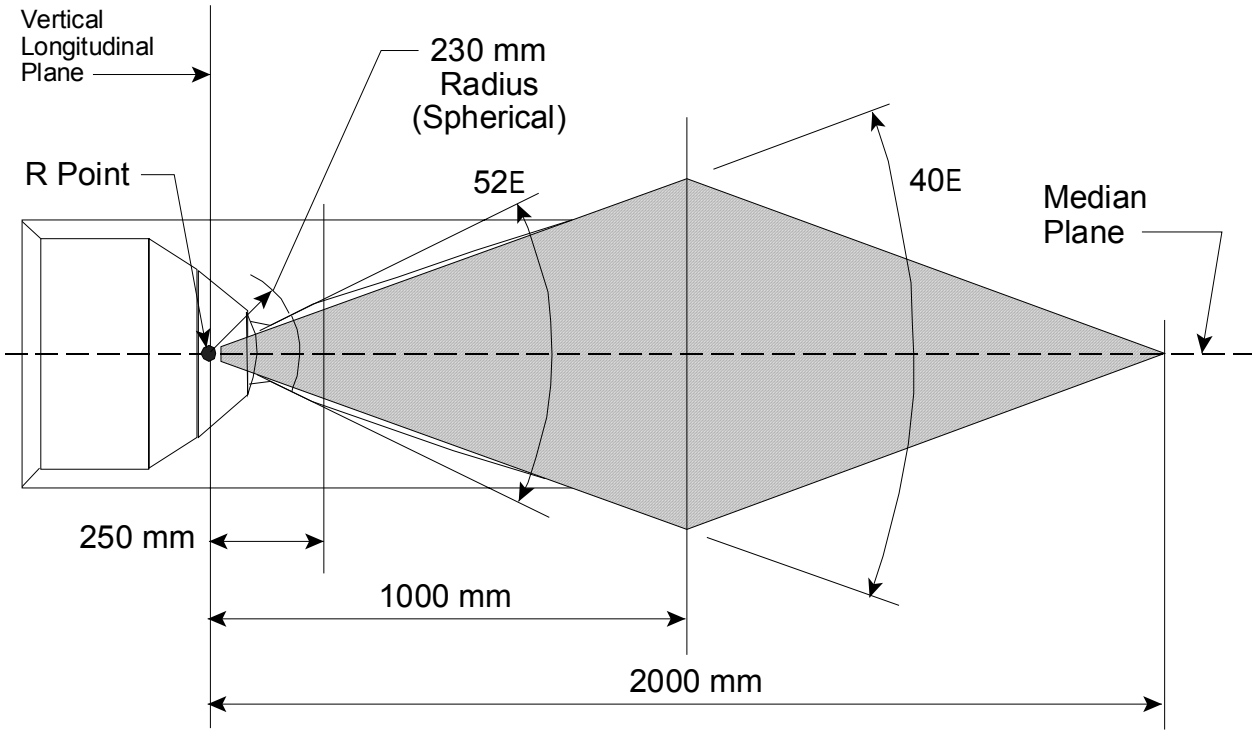


Figure 9. Plan View (R-point Level), User-ready Tether Anchorage Optional Location for Passenger Cars and Multipurpose Passenger Vehicles until September 1, 2004

Notes

1. Dimensions in mm, except where otherwise indicated
2. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
3. Drawing not to scale
4. "R" Point: Shoulder reference point

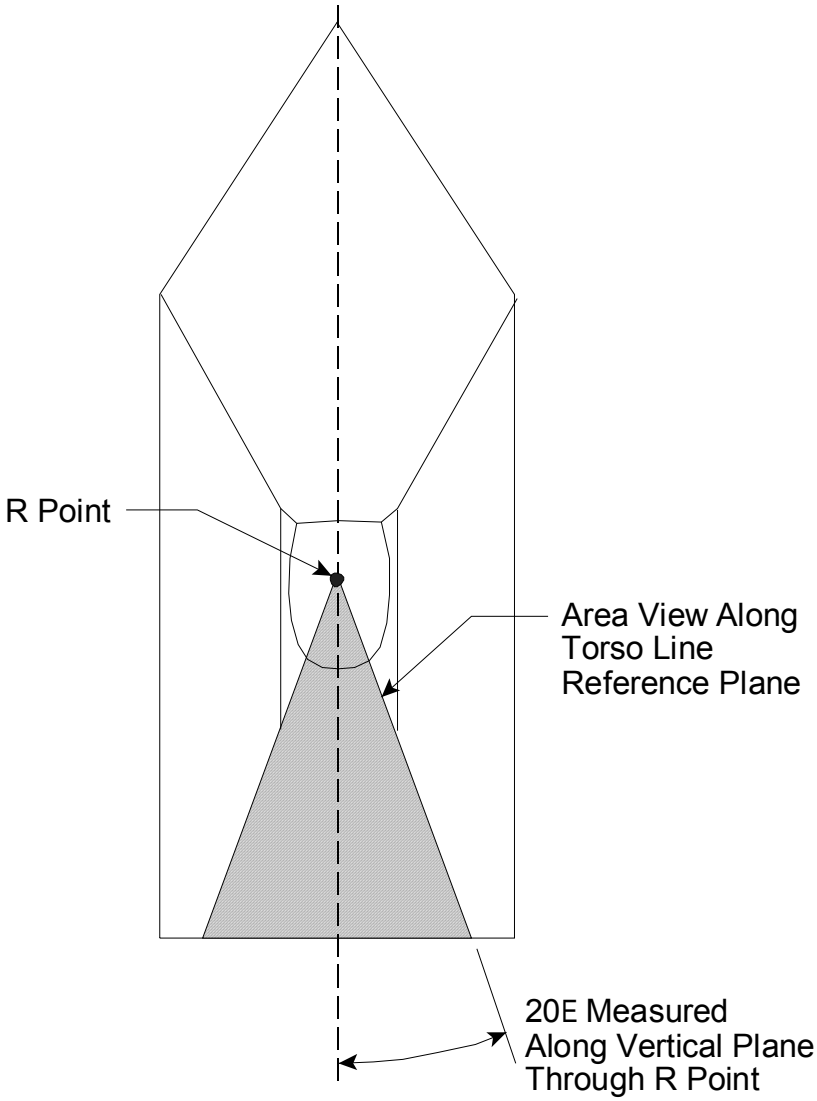


Figure 10. Front View, User-ready Tether Anchorage Optional Location for Passenger Cars and Multipurpose Passenger Vehicles until September 1, 2004.

Notes

1. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
2. Drawing not to scale
3. "R" Point: Shoulder reference point

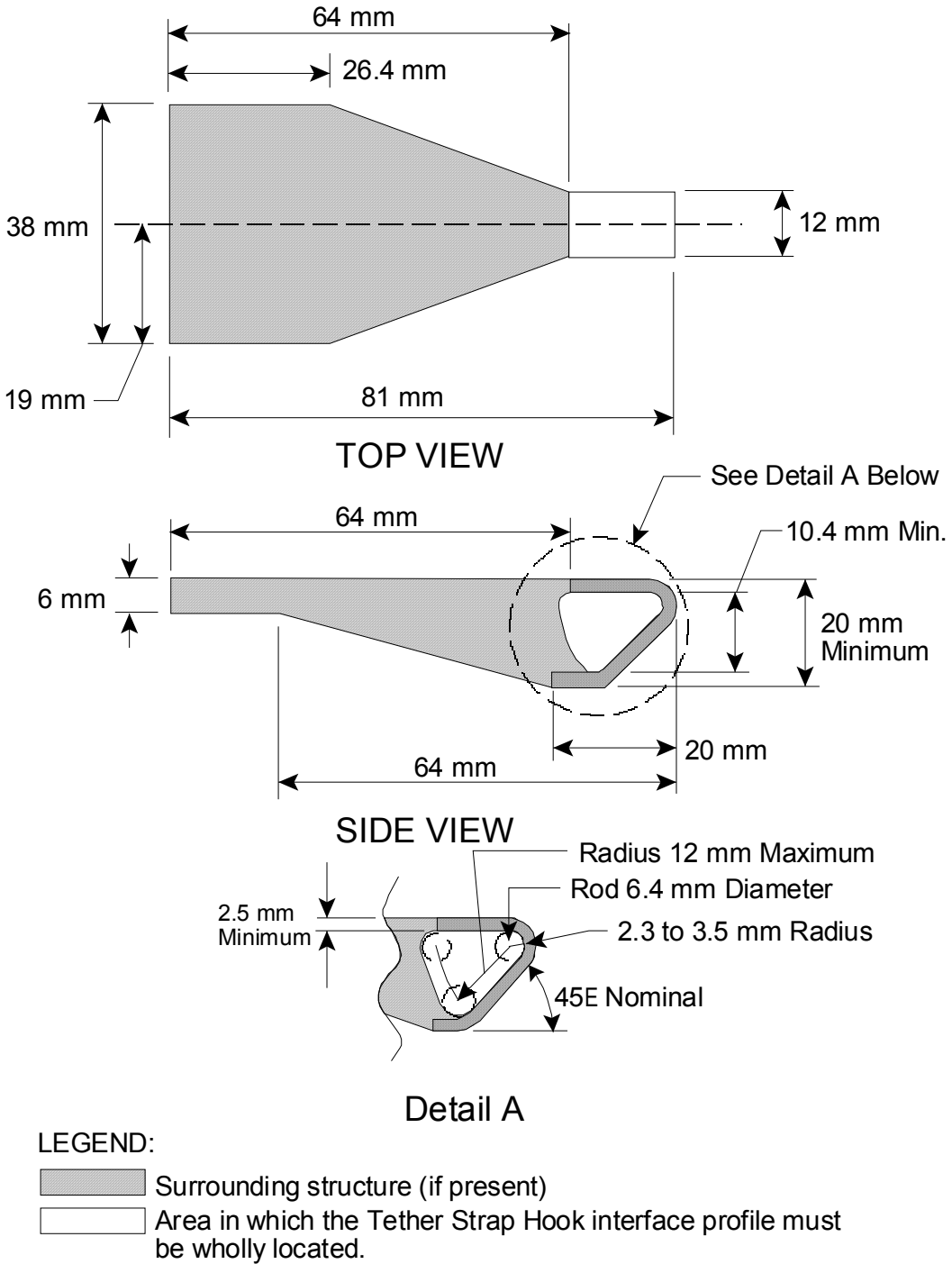


Figure 11. Interface Profile of Tether Hook

Notes

1. Dimensions in mm, except where otherwise indicated
2. Drawing not to scale

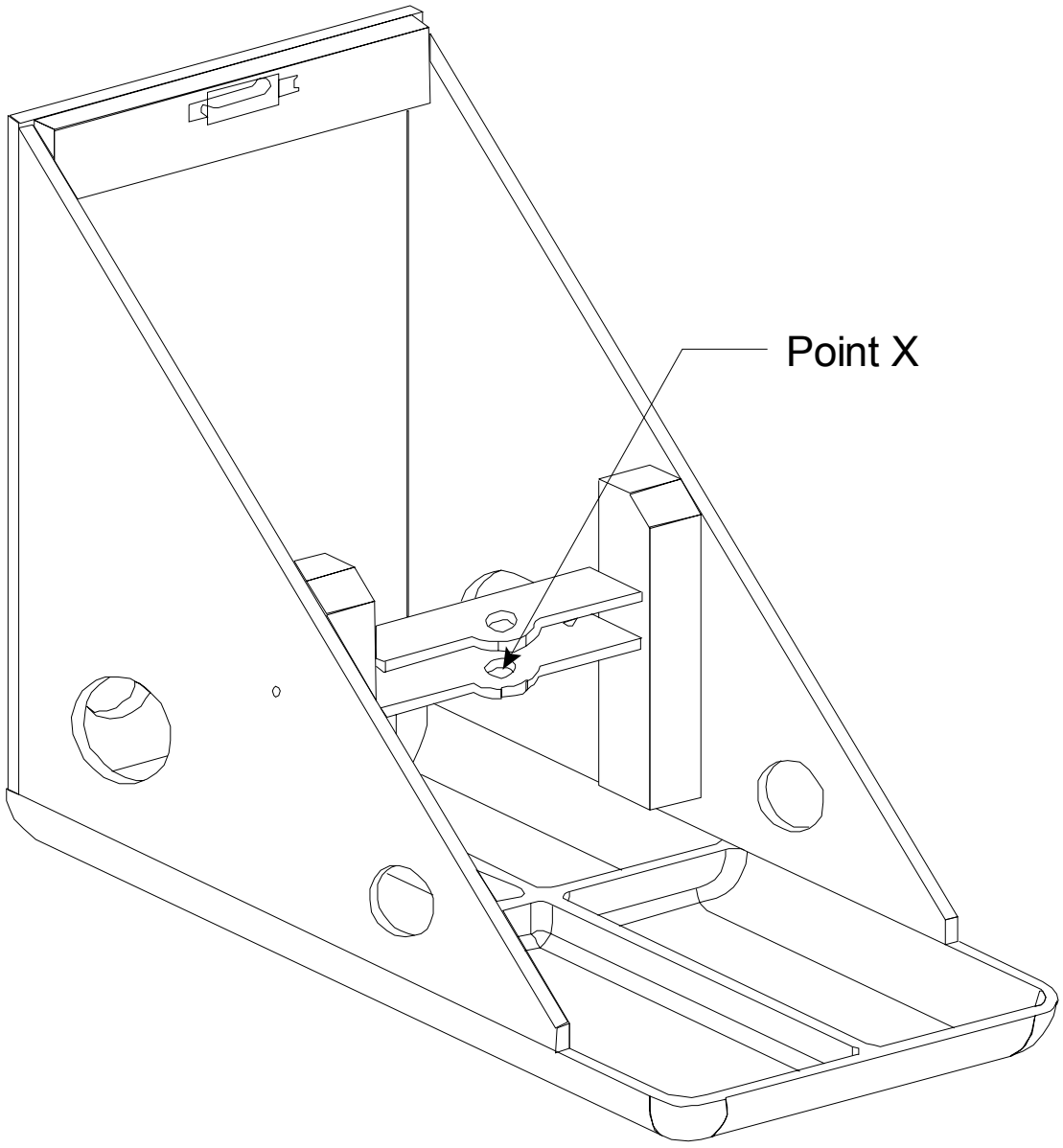


Figure 12. Three Dimensional Schematic View of the Static Force Application Device (SFAD 1)

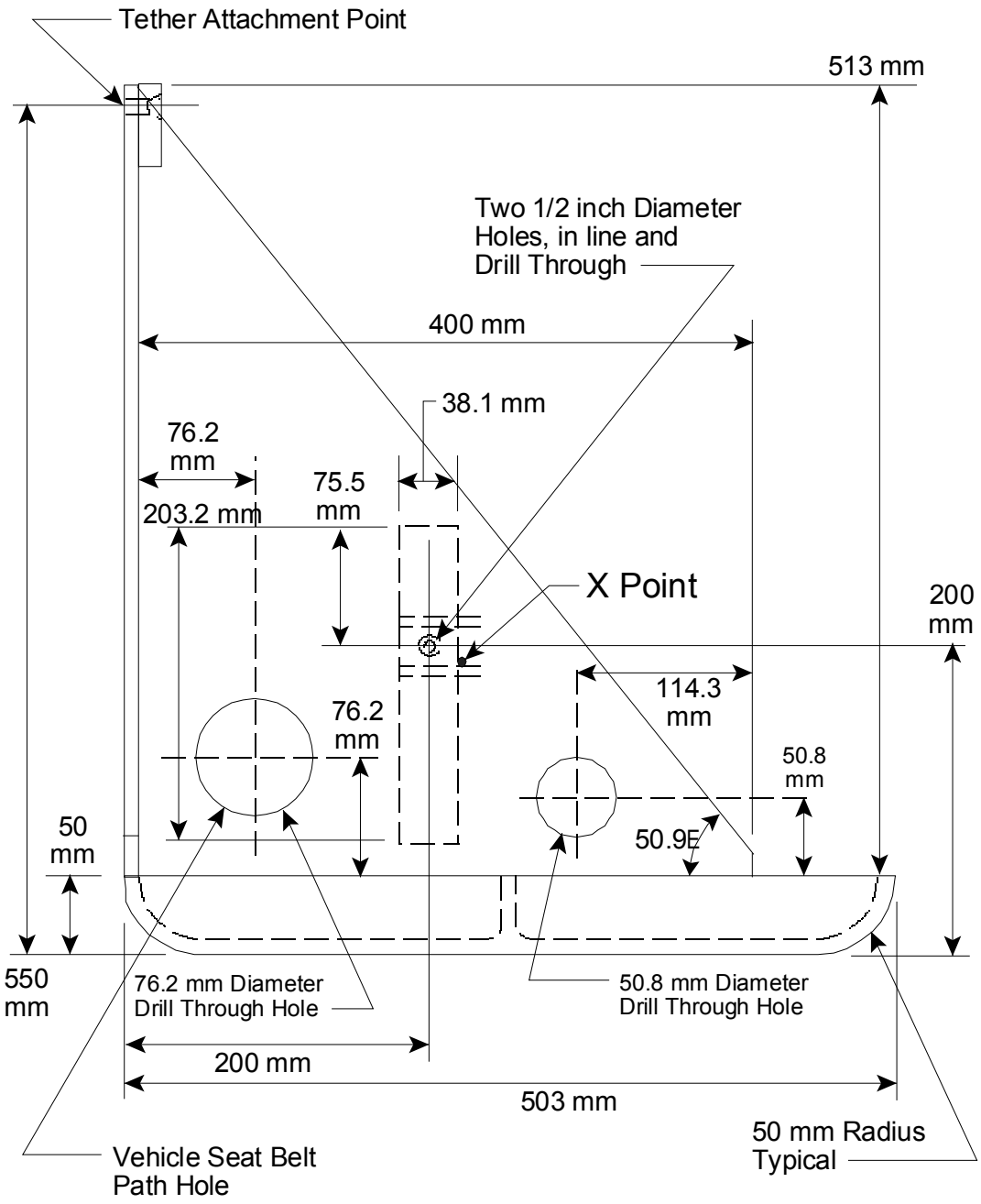


Figure 13. Side View, Static Force Application Device (SFAD 1)

Notes

1. Material: 6061-T6-910 Aluminum
2. Dimensions in mm, except where otherwise indicated
3. Drawing not to scale
4. Break all outside corners

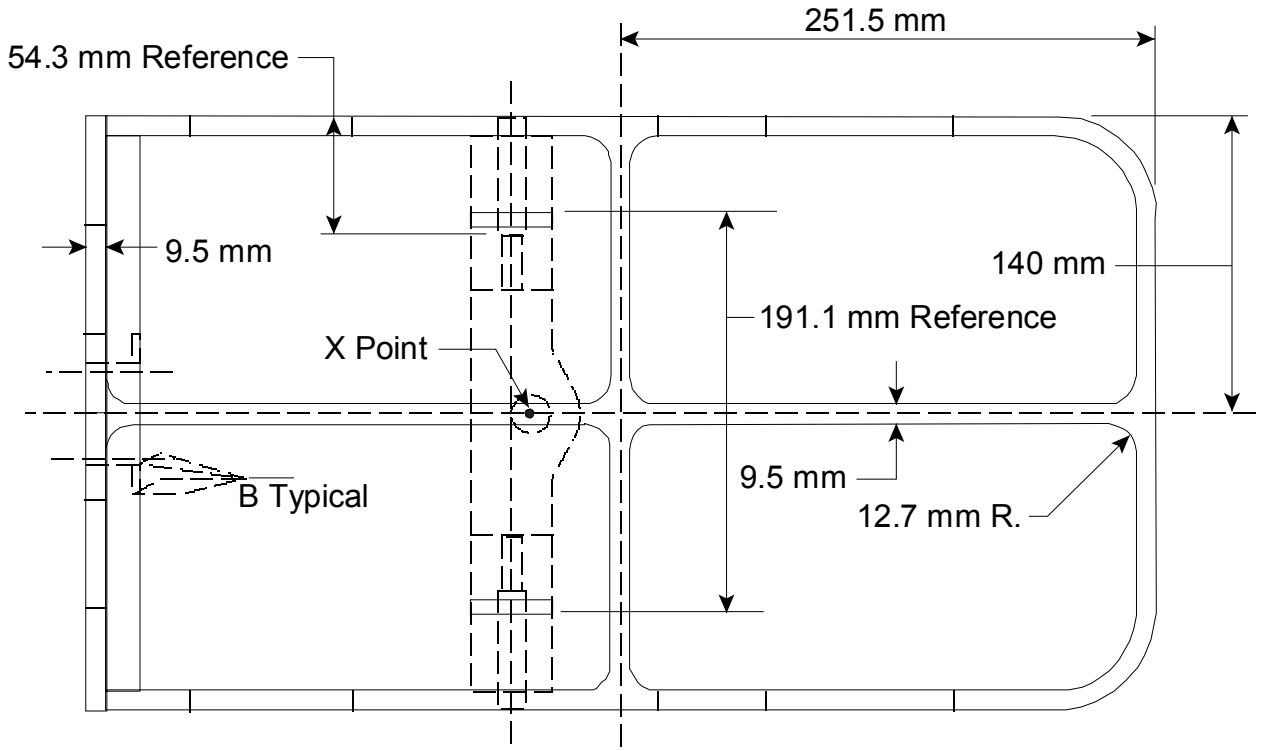


Figure 14. Plan View, Static Force Application test Device 1 (SFAD 1)

Notes

1. Material: 6061-T6-910 Aluminum
2. Dimensions in mm, except where otherwise indicated
3. Drawing not to scale
4. Break all outside corners and lightning hole edges 1.5 mm approximately.
5. Break edges of vehicle seat belt path holes at least 4 mm
6. "B" = approximately 0.8 mm

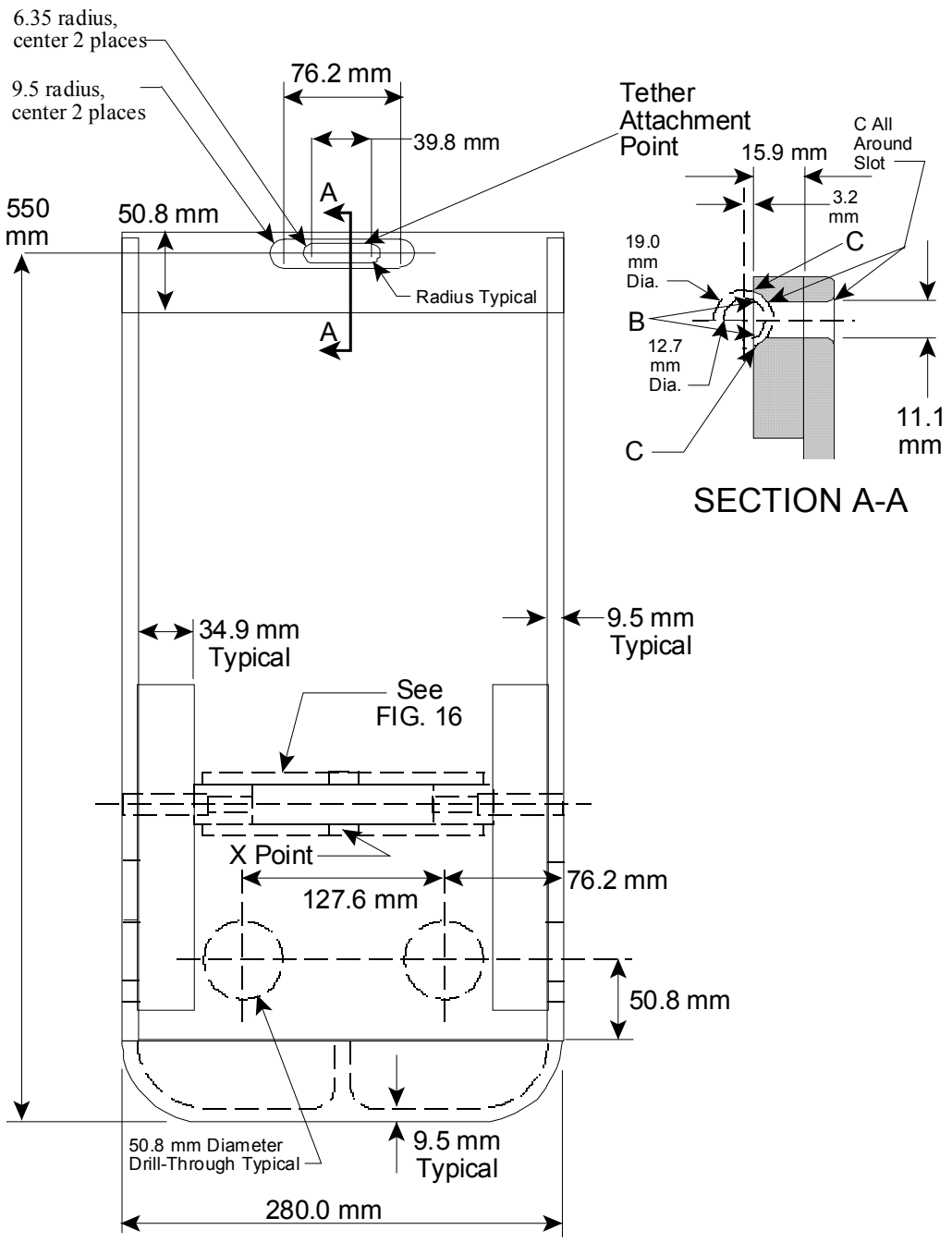


Figure 15. Front View, Static Force Application Device 1 (SFAD 1)

Notes:

1. Material: 6061-T6-910
2. Dimensions in mm, except where otherwise indicated
3. Drawing not to scale
4. "B" = approximately 0.8 mm
5. "C" = approximately 3.2 mm

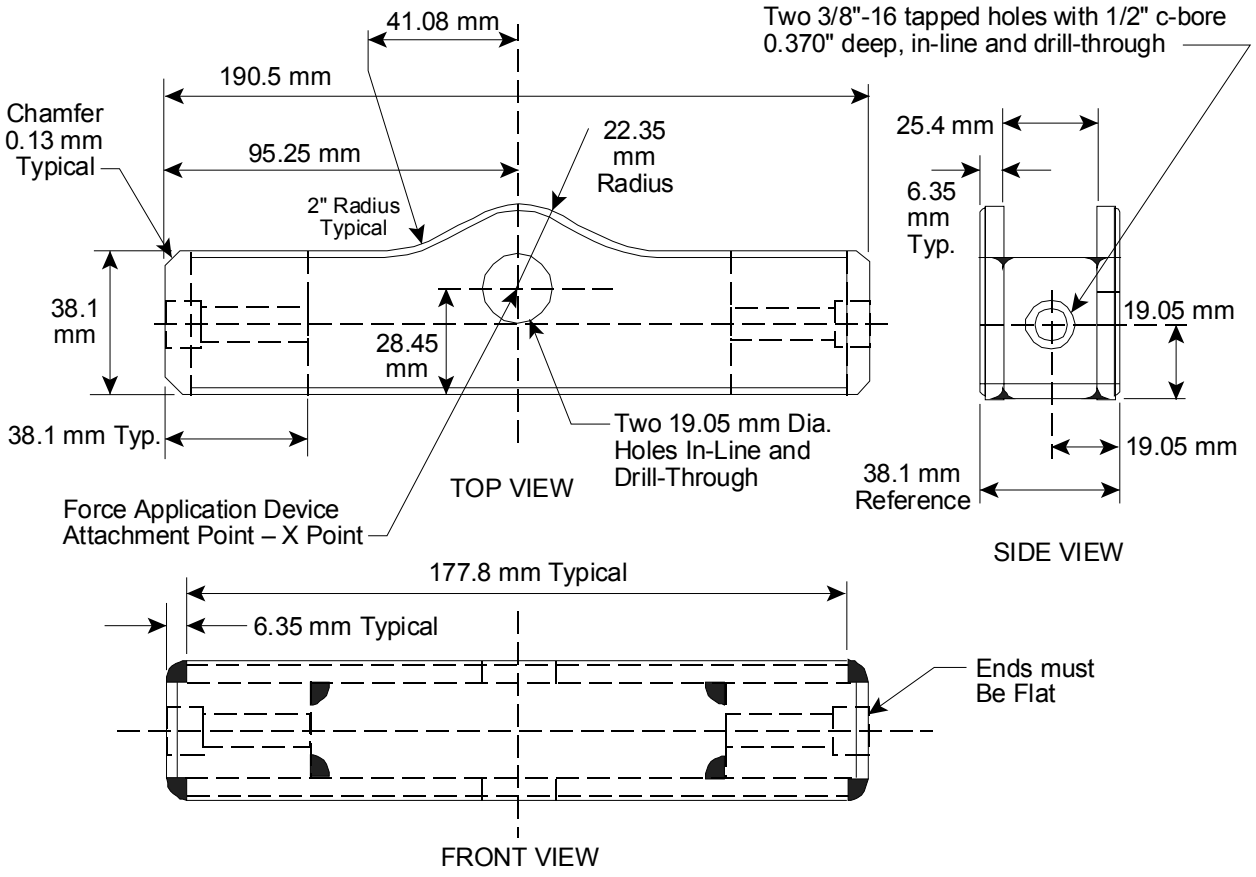


Figure 16. Cross Bar, Static Force Application Test Device

Notes

1. Material: Steel
2. Dimensions in mm, except where otherwise indicated
3. Drawing not to scale
4. Break all outside corners approximately 1.5 mm
5. Surfaces and edges are not to be machined unless otherwise specified for tolerance.
6. Saw-cut or stock size material whenever possible.
7. Construction to be securely welded.

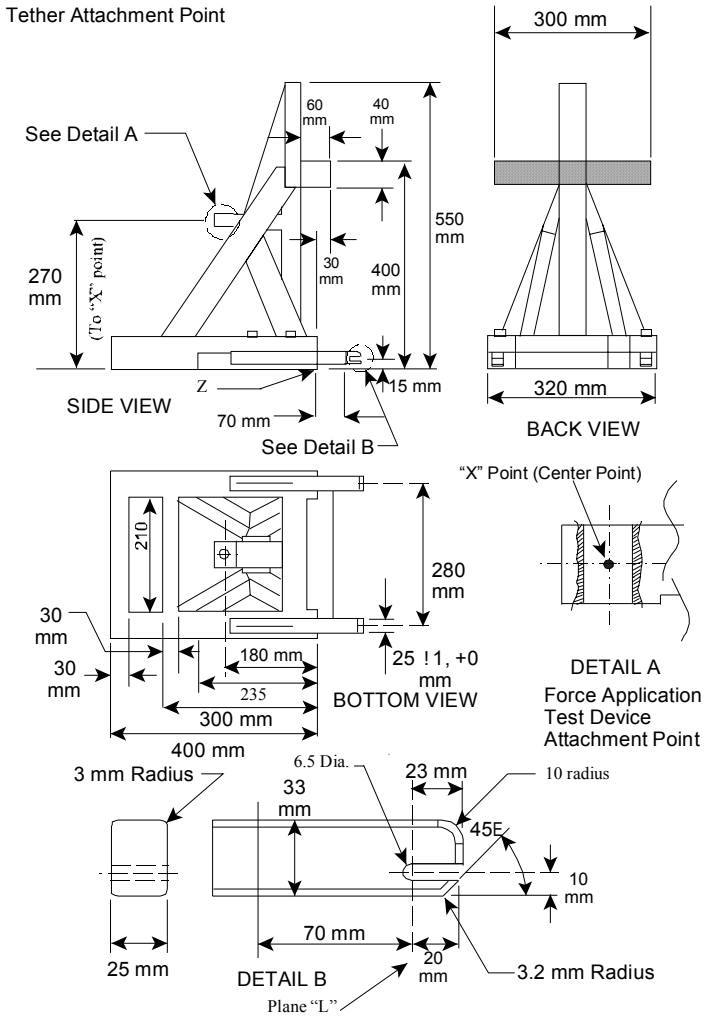


Figure 17. Side, Back and Bottom Views, ISO 13216-1 Static Force Application Device 2 (SFAD 2)

Notes

1. Drawing not to scale.
2. Dimensions in mm, except where otherwise indicated
3. Securely welded construction. Device stiffness satisfied when using a securely welded construction consisting of rectangular 3 mm steel tubing and 6 mm thick load application plate.
4. If construction not as per note 3, stiffness of device is satisfied if movement of point "X" is not more than 2 mm in any direction when forces are applied as specified in FMVSS No. S15.2.1, with device attached to rigid anchorage bars and the front cross member supported by a rigid bar that is held at the center by a longitudinal pivot 25 mm below the SFAD2 base (as shown in broken line) to allow bending and twisting of the base of the device. Any measurable deformation of the anchorage bars to be excluded from the measurements of the movement of point "X."
5. The bearing surface of the mechanism that locks to the anchorage bar shall have a 3.05 -0 + 0.50 mm radius. When locked, the maximum horizontal distance between two baring surfaces that containing the bar shall be 6.0 ± .1 mm.
6. The belt strap shall be attached to the fixture such that it does not come off from the top of the fixture during the loading.

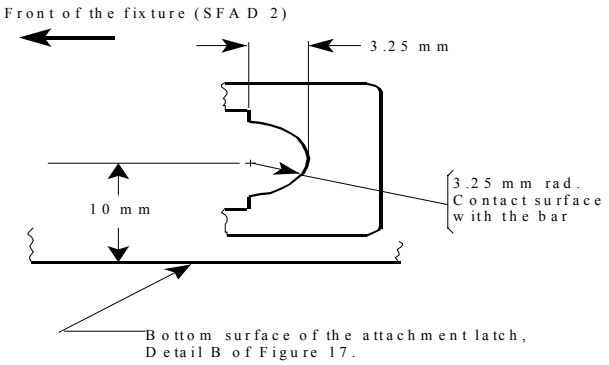


Figure 17A. Illustration of the mechanism that locks onto the anchorage bar.

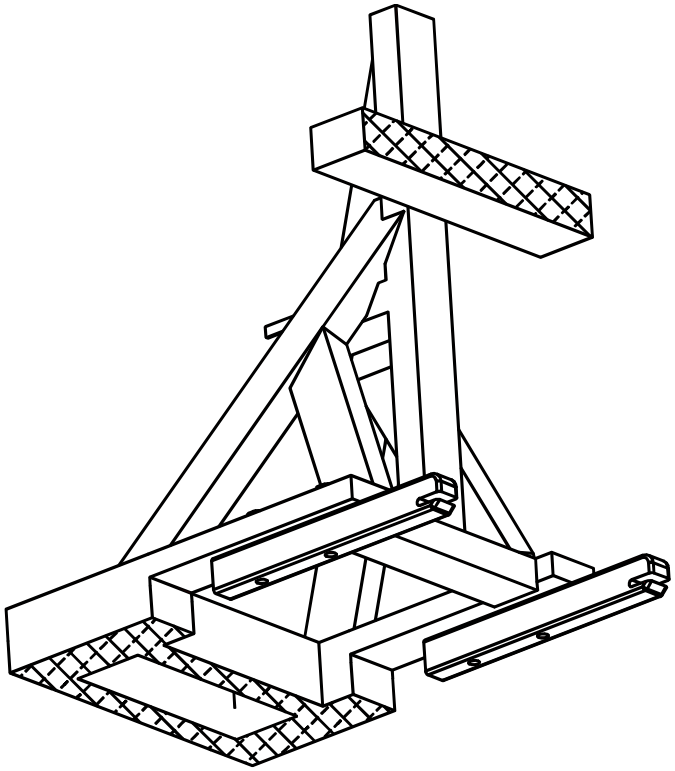


Figure 18. Three-dimensional Schematic Views of the ISO 13216-1 Static Force Application Device 2 (SFAD 2)

Note. The three-dimensional schematic views above is for information only. For the dimensions, see Figure 17.

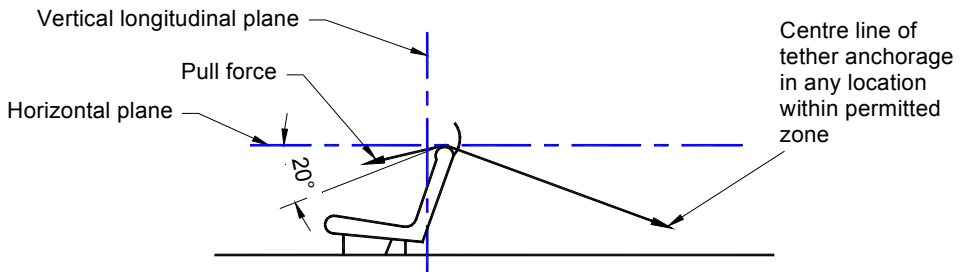


Figure 19. Side View, Optional tether Anchorage Test for Passenger Cars until September 1, 2004.

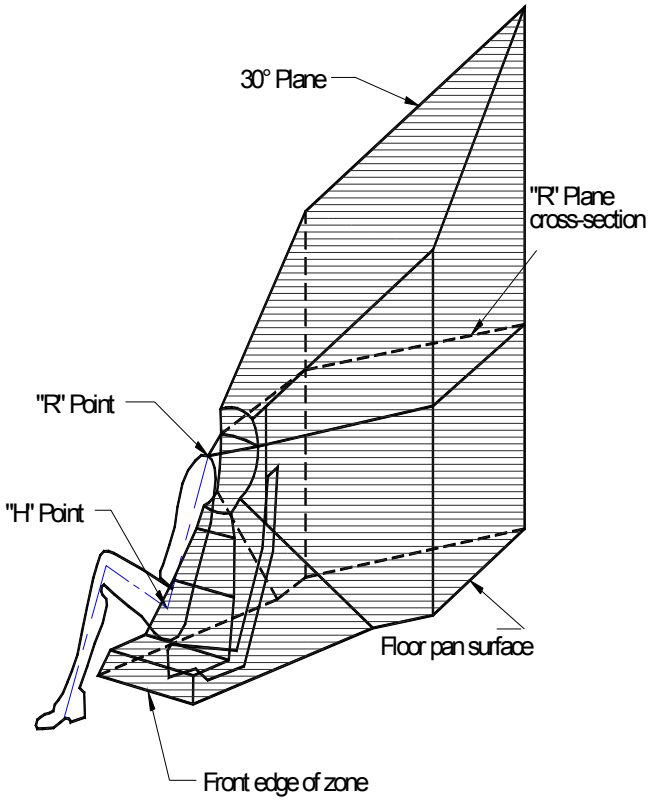


Figure 20. Three-dimensional Schematic View of User-ready Tether Anchorage Optional Location for Passenger Cars and Multipurpose Passenger Vehicles until September 1, 2004.

Notes

1. Portion of user-ready tether anchorage that is designed to bind with the tether strap hook to be located within shaded zone
2. Drawing not to scale
3. “R” Point: Shoulder Reference Point

13. POST TEST REQUIREMENTS

13.1 Verification of Data

Contractor shall re-verify all instrumentation and check data sheets.

13.2. Evaluation of Written Instruction for Tether Attachment

Contractor shall review the tether attachment instruction in the owner's manual, and evaluate it based on the following:

1. If the vehicle has an owner's manual but the child restraint instructions are not included, rate it as "None Compliance."

2. If the instructions in the owner's manual do not indicate which seating positions in the vehicle are equipped with tether anchorages, rate it as "None Compliance."

3. If the vehicle has an owner's manual and the instructions are included, determine a weighted rank based on the following criteria:

Evaluation Criteria	**Rate**	**Sub-total Rate**
a. If there is a head restraint in front of a tether anchorage, does it have a picture or instruction(s) to indicate that the tether strap must be placed under the head restraint?	If "No" : 0	
	If "N/A" : 3	
	If "Yes" : 3	
b. Does it have a picture or instruction to indicate that the anchorage hook cover must be open (or removed)?	If "No" : 0	
	If "Yes" : 1	
c. Does it have a picture or instruction to indicate that the anchorage hook must be in "face down" position when it is attached to the anchorage?	If "No" : 0	
	If "Yes" : 2	
d. Does it have a picture and instruction to indicate that the tether strap must be tightened to remove any slack after the hook is latched onto the anchorage?	If "No" : 0	
	If "Yes" : 4	
e. Does it have an enlarged picture of a properly attached tether anchorage?	If "No" : 0	
	If "Yes" : 1	

Total Rate $= 3(\text{Sub-total Rate})_i$

$= \_\_\_\_\_$

Record the evaluation result in the report.

14. REPORTS

14.1. Monthly Status Reports

The contractor shall submit a monthly Test Status Report and a Vehicle or Equipment Status Report to the COTR. The Vehicle or Equipment Status Report shall be submitted until all vehicles or items of equipment are disposed of. See Forms for samples of the required Monthly Status Reports.

14.2. Apparent Test Failure

Any indication of a test failure shall be communicated by telephone to the COTR within 24 hours with written notification mailed within 48 hours (Saturday and Sunday hours excluded). A Notice of Test Failure (see Forms) with a copy of the particular compliance test data sheet(s) and preliminary data plot(s) shall be included.

In the event of a test failure, a post test calibration check of some critically sensitive test equipment and instrumentation may be required for verification of accuracy. The necessity for the calibration shall be at the COTR's discretion and shall be performed without additional costs to the OVSC.

14.3. Final Test Reports

14.3.1 Copies

In the case of a test failure, **seven** copies of the Final Test Report shall be submitted to the COTR for acceptance within three weeks of test completion. The Final Test Report format to be used by all contractors can be found in this section.

Where there has been no indication of a test failure, **three** copies of each Final Test Report shall be submitted to the COTR for acceptance within three weeks of test completion. Payment of contractor's invoices for completed compliance tests may be withheld until Final Test Report acceptance by the COTR. Contractors are requested to NOT submit invoices before the COTR is provided with copies of the Final Test Report.

Contractors are required to submit the first Final Test Report in draft form within two weeks after the compliance test is conducted. The contractor and the COTR will then be able to discuss the details of both test conduct and report content early in the compliance test program.

Contractors are required to PROOF READ all Final Test Reports before submittal to the COTR. The OVSC will not act as a report quality control office for contractors. Reports containing a significant number of errors will be returned to the contractor for correction, and a "hold" will be placed on invoice payment for the particular test.

14.3.2 Requirements

The Final Test Report, associated documentation (including photographs) are relied upon as the chronicle of the compliance test. The Final Test Report will be released to the public domain after review and acceptance by the COTR. For these reasons, each final report must be a complete document capable of standing by itself and containing all data sheets.

The Contractor should use detailed descriptions of all compliance test events. Any events that are not directly associated with the standard but are of technical interest should also be included. The contractor should include as much detail as possible in the report.

The Contractor shall provide a copy of the manufacturer's tether installation instructions found in the vehicle owner's manual along with a copy of Form 14 provided by the COTR in the final report.

Instructions for the preparation of the first three pages of the final test report are provided for standardization.

14.3.3 First Three Pages

A. FRONT COVER

A heavy paperback cover (or transparency) shall be provided for the protection of the final report. The information required on the cover is as follows:

Final Report Number such as 225-ABC-0X-001, where —

225	is the FMVSS tested
ABC	are the initials for the laboratory
0X	is the Fiscal Year of the test program
001	is the Group Number (001 for the 1st test, 002 for the 2nd test, etc.)

Final Report Title And Subtitle such as

SAFETY COMPLIANCE TESTING FOR FMVSS 225
Child Restraint Anchorage Systems
Tether Anchorages
* * * * * * * * * * * * * * * * * *
Name of Vehicle Manufacturer
Model Year, Make/Model, Body Style
NHTSA Number Test Vehicle

Contractor's Name and Address such as

COMPLIANCE TESTING LABORATORIES, INC.
4335 West Dearborn Street
Detroit, Michigan 48090

NOTE: DOT SYMBOL WILL BE PLACED BETWEEN ITEMS (3) AND (4)

Date of Final Report Completion such as "March 15, 200X"

The words "FINAL REPORT"

The sponsoring agency's name and address as follows —

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6115 (NSA-30)
Washington, DC 20590

14. REPORTS....Continued

B. FIRST PAGE AFTER FRONT COVER

A disclaimer statement and an acceptance signature block for the COTR shall be provided as follows

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: _____

Approved By: _____

Approval Date: _____

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____

Acceptance Date: _____

14. REPORTS....Continued

C. SECOND PAGE AFTER FRONT COVER
A completed Technical Report Documentation Page (Form DOT F1700.7) shall be completed for those items that are applicable with the other spaces left blank. Sample data for the applicable block numbers of the title page follows.

Block 1 — REPORT NUMBER

225-ABC-0X-001

Block 2 — GOVERNMENT ACCESSION NUMBER

Leave blank

Block 3 — RECIPIENT'S CATALOG NUMBER

Leave blank

Block 4 — TITLE AND SUBTITLE

Final Report of FMVSS 225 Compliance Testing, Tether Anchorage, of 200X Ace TK Super 2-door Coupe, NHTSA No. CX0401

Block 5 — REPORT DATE

March 15, 200X

Block 6 — PERFORMING ORGANIZATION CODE

ABC

Block 7 — AUTHOR(S)

John Smith, Project Manager / Bill Doe, Project Engineer

Block 8 — PERFORMING ORGANIZATION REPORT NUMBER

ABC-DOT-XXX-001

Block 9 — PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories
405 Main Street
Detroit, MI 48070

14. REPORTS....Continued

Block 10 — WORK UNIT NUMBER

Leave blank

Block 11 — CONTRACT OR GRANT NUMBER

DTNH22-0X-D-12345

Block 12 — SPONSORING AGENCY NAME AND ADDRESS

US Department of Transportation
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance (NSA-30)
400 Seventh Street, SW, Room 6115
Washington, DC 20590

Block 13 — TYPE OF REPORT AND PERIOD COVERED

Final Test Report
Feb. 15 to Mar. 15, 200X

Block 14 — SPONSORING AGENCY CODE

NSA-30

Block 15 — SUPPLEMENTARY NOTES

Leave blank

Block 16 — ABSTRACT

Compliance tests were conducted on the subject 200X Ace TK Super 2-door coupe in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-225T-X for the determination of FMVSS 225 compliance. Test failures identified were as follows:

None

NOTE: Above wording must be shown with appropriate changes made for a particular compliance test. Any questions should be resolved with the COTR.

14. REPORTS....Continued

Block 17 — KEY WORDS

Compliance Testing
Safety Engineering
FMVSS 225

Block 18 — DISTRIBUTION STATEMENT

Copies of this report are available from —

NHTSA Technical Reference Division
Room 5108 (NAD-52)
400 Seventh St., SW
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Telephone No.: 202-366-4946

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Unclassified

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Unclassified

Block 21 — NUMBER OF PAGES

Add appropriate number

Block 22 — PRICE

Leave blank

14. REPORTS....Continued

14.3.4 Table of Contents

Final test report Table of Contents shall include the following:

Section 1 — Purpose of Compliance Test

Section 2 — Compliance Test Data Summary

Section 3 — Compliance Test Data

Section 4 — Noncompliance Data (if applicable)

Section 5 — Photographs

15. DATA SHEETS

DATA SHEET 1

CHILD RESTRAINT TETHER ANCHORAGE CONFIGURATION

VEH. MOD YR/MAKE/MODEL/BODY: _____

VEH. NHTSA NO.: _____ ; VIN: _____

VEH. BUILD DATE: _____ ; TEST DATE: _____

TEST LABORATORY: _____

OBSERVERS: _____

Number of DSPs in Test Vehicle As Stated On Tire Label using Figures For Maximum Vehicle Loading

Front Seat = _____
Rear Seat = _____
Third Seat = _____
TOTAL = _____

SEATING POSITION		OBSERVED CONFIGURATION			
		Permit the attachment of a tether hook	Accessible without the need for any tool other than a screwdriver or coin	Ready for use without the need for any tools	Sealed to prevent the entry of exhaust fumes
Front	Left	N/A	N/A	N/A	N/A
	Center				
	Right				
Second	Left				
	Center				
	Right (if any)				
Third	Left				
	Center				
	Right				

15. DATA SHEETS....Continued

REMARKS:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 2

RESERVED

15. DATA SHEETS....Continued

DATA SHEET 3

LOCATION AND DIMENSIONAL MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: _____

VEH. NHTSA NO.: _____ ; VIN: _____; VEH. BUILD DATE: _____

TEST DATE: _____; TEST LABORATORY: _____

OBSERVERS: _____

Number of DSPs in Test Vehicle As Stated On Tire Label using Figures For Maximum Vehicle Loading

Front Seat = _____
Rear Seat = _____
Third Seat = _____
TOTAL = _____

SEAT POSITION FOR TETHER		LOCATION OF DSPs		TETHER ANCHORAGE LOCATION	
		SPECIFIED	OBSERVED	REQUIRED	MEASURED Is it in the required zone?
FRONT	Left	N/A	N/A	N/A	N/A
	Center				
	Right				
SECOND	Left				
	Center				
	Right				
THIRD	Left				
	Center				
	Right				

Note: Provide the photographic picture with the 2-D template installed.

RESERVED

15. DATA SHEETS....Continued

REMARKS:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

DATA SHEET 4
ANCHORAGE STATIC LOADING

VEH. MOD YR/MAKE/MODEL/BODY: _____

VEH. NHTSA NO.: _____ ; VIN: _____

VEH. BUILD DATE: _____ ; TEST DATE: _____

TEST LABORATORY: _____

OBSERVERS: _____

TETHER ANCHORAGE - WITHOUT SFAD:

SEATING POSITION		Seat, Seat back & Head Restraint positions			Belt Strap Extension	Angle	Initial location	onset rate	force applied	Final location	Horizontal Displacement
		Seat	Seat Back	Is there a Head Restraint?							
FRONT	Driver	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center										
	Right										
SECOND	Left										
	Center										
	Right (if any)										
THIRD	Left										
	Center										
	Right										

REMARKS:

15. DATA SHEETS....Continued

DATA SHEET 5
ANCHORAGE STATIC LOADING

VEH. MOD YR/MAKE/MODEL/BODY: _____

VEH. NHTSA NO.: _____ ; VIN: _____

VEH. BUILD DATE: _____ ; TEST DATE: _____

TEST LABORATORY: _____

OBSERVERS: _____ TYPE of SFAD USED:_____

TETHER ANCHORAGE - WITH SFAD:

SEATING POSITION		Seat, Seat back & Head Restraint positions			Type of SFAD used	Angle	Initial location	Onset rate	Force applied	Final location	Horizontal Displacement
		Seat	Seat Back	Head Restraint							
FRONT	Driver	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Center										
	Right										
SECOND	Left										
	Center										
	Right (if any)										
THIRD	Left										
	Center										
	Right										

REMARKS:

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 6

RESERVED

15. DATA SHEETS....Continued

DATA SHEET 7

RESERVED

15. DATA SHEETS....Continued

DATA SHEET 8
TEST VEHICLE RECEIVING-INSPECTION

VEH. MOD YR/MAKE/MODEL/BODY: _____

VEH. NHTSA NO.: _____ ; VIN: _____

VEH. BUILD DATE: _____ ; TEST DATE: _____

TEST LABORATORY: _____

OBSERVERS: _____

1. First compliance test by laboratory for this vehicle is S225 test.

___ Yes ___ No (Go to item 2)

___ 1.1 Label test vehicle with NHTSA Number

___ 1.2 Verify all options on the "window sticker" are present on the vehicle

___ 1.3 Verify tires and wheel rims are new and the same as listed

___ 1.4 Verify there are no dents or other interior or exterior flaws

___ 1.5 Verify the glove box contains an owner's manual, warranty document, consumer information, and extra keys

___ 1.6 Verify the vehicle is equipped with the proper fuel filler cap

___ 1.7 If the vehicle has been delivered from the dealer, verify the vehicle has been properly prepared and is in running condition

2. Verify seat adjusters are working

___ Yes ___ No

3. Verify there is a seat belt at each seating position

___ Yes ___ No

15. DATA SHEETS....Continued

4. Without disturbing the integrity of each seat belt and anchorage, verify that each seat belt is attached to the anchorage. For seat belts that are attached to the seat, also verify the seats are attached to the seat anchors and the seat anchors are attached to the vehicle.

___ Yes ___ No

5. REMARKS: (Explain any problems here)

RECORDED BY: _____ DATE: _____

APPROVED BY: _____

16. FORMS

LABORATORY NOTICE OF TEST FAILURE TO OVSC

FMVSS NO.: **225** TEST DATE: _____

LABORATORY: _____

CONTRACT NO.: DTNH22-_____; DELV. ORDER NO.: _____

LABORATORY PROJECT ENGINEER'S NAME: _____

TEST VEHICLE MAKE/MODEL/BODY STYLE: _____

_____

VEHICLE NHTSA NO.: _____; VIN: _____

VEHICLE MODEL YEAR: _____; BUILD DATE: _____

TEST FAILURE DESCRIPTION: _____

_____

_____

_____

S225 REQUIREMENT, PARAGRAPH ____ : _____

_____

_____

_____

NOTIFICATION TO NHTSA (COTR): _____

DATE: _____ BY: _____

REMARKS:

16. FORMS....Continued

MONTHLY TEST STATUS REPORT
FMVSS **225**

DATE OF REPORT:____/_____/____

No.	VEHICLE NHTSA No., MAKE & MODEL	COMPLIANCE TEST DATE	PASS/ FAIL	DATE REPORT SUBMITTED	DATE INVOICE SUBMITTED	INVOICE PAYMENT DATE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

16. FORMS....Continued

MONTHLY VEHICLE STATUS REPORT
FMVSS **225**

DATE OF REPORT:_____

No.	VEHICLE NHTSA No., MAKE & MODEL	DATE OF DELIVERY	TEST COMPLETE DATE	VEHICLE SHIPMENT DATE	CONDITION OF VEHICLE
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

APPENDIX A

DATA ACQUISITION REQUIREMENT

An electronic data submission (data tape), formatted in accordance with NHTSA R&D Data Reference Guide, Volume III: Component Tests V%, will be required for each test conducted for OVSC. Copied of the guide may be downloaded from the web site, "http:\www-nrd.nhtsa.dot.gov/nrd10/software/TestRefGuides/guides.html."

The ENTREEW V5 application software provides a comprehensive graphical user interface for the generation of the compliance test data sets defined in the Component Test V5 guide, and may be downloaded from "http:\www-nrd.nhtsa.dot.gov/nrd10/software/entree/index.html."

Each submission shall include the raw sensor outputs measured to determine compliance to the standard, such as force and displacement, etc., but computed signals, such as resultants, integrals, or derivatives of the measured output are not required.

Any question concerning preparation of the electronic data submission should be directed to:

Barbara Hennessey
US/DOT
NHTSA/NRD11
400 Seventh Street, SW
Washington, DC 20590
PH: 202-366-4714
FX: 202-366-5670

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barbara.hennessey@nhtsa.dot.gov

Appendix B. Photographic Illustration of the Procedure